DCR-HC39E/HC41/HC42/HC42E/HC43/HC43E
RMT-831

SERVICE MANUAL

Ver 1.0 2005.01
Revision History

How to use Acrobat Reader

DCR-HC42
US Model
Canadian Model
DCR-HC39E/HC42E
AEP Model
UK Model
East European Model
North European Model
DCR-HC42/HC42E/HC43E
E Model
DCR-HC42E
Australian Model
Hong Kong Model
DCR-HC43
Brazilian Model
DCR-HC43E
Chinese Model
DCR-HC42/HC42E
Tourist Model
DCR-HC42
Korea Model
DCR-HC41
Japanese Model

Photo: DCR-HC43E

Z MECHANISM (MDX-Z210)

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	REPAIR PARTS LIST
DISASSEMBLY	SCHEMATIC DIAGRAMS	

- For ADJUSTMENTS (SECTION 6), refer to SERVICE MANUAL, ADJ (9-876-783-51).
- For INSTRUCTION MANUAL, refer to SERVICE MANUAL, LEVEL 1 (9-876-783-41). (EXCEPT J MODEL)
- For MECHANISM ADJUSTMENTS, refer to the “DV MECHANICAL ADJUSTMENT MANUAL VIII Z (Z200/Z210/Z300/Z310) MECHANISM ” (EXCEPT J: 9-876-724-1▯) (J: 9-876-724-0▯).
- Reference No. search on printed wiring boards is available.
- Table for differences of function of each model.
- TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)
- HELP: Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

On the VC-378 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-378 board.
Therefore, schematic diagrams, printed wiring boards, mounted parts location and electrical parts list of the VC-378 board are not shown.

The following pages are not shown.

Schematic diagrams	Pages 4-9 to 4-46
Printed wiring boards	Pages 4-67 to 4-70
Waveforms	Pages 4-82 to 4-87
Mounted parts location	Pages 4-90 and 4-91
Electrical parts list	Pages 5-15 to 5-22

Mini DV Digital Video Cassette

DIGITAL VIDEO CAMERA RECORDER

SONY®

Sony EMCS Co.
2005A0500-1
© 2005.1
Published by DI Technical Support Section

SPECIFICATIONS

System

Video recording system	2 rotary heads, Helical scanning system
Still image recording system	Exif Ver. 2.2*1
Audio recording system	Rotary heads, PCM system Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal	DCR-HC42/HC43: NTSC color, EIA standards DCR-HC39E/HC42E/HC43E: PAL color, CCIR standards
Usable cassette	Mini DV cassette with the Mini DV mark printed
Tape speed	SP: Approx. 18.81 mm/s LP: Approx. 12.56 mm/s
Recording/ playback time	SP: 60 min LP: 90 min (using a DVM60 cassette)
Fast forward/ rewind time	Approx. 2 min 40 s (using a DVM60 cassette)
Viewfinder	Electric viewfinder DCR-HC39E: black and white DCR-HC42/HC42E/HC43/HC43E: color
Image device	3.27 mm (1/5.5 type) CCD (Charge Coupled Device) Gross: Approx. 1 070 000 pixels Effective (still): Approx. 1 000 000 pixels Effective (movie): Approx. 690 000 pixels
Lens	Carl Zeiss Vario-Tessar Combined power zoom lens Filter diameter: 25 mm (1 in.) 12 × (Optical), 480 × (Digital) F=1.8 - 2.5
Focal length	f=3.0 - 36 mm (1/8 - 1 7/16 in.) When converted to a 35 mm still camera: In CAMERA-TAPE: 16:9 mode*2: 46 ~ 628.5 mm (1 13/16 - 24 3/4 in.) 4:3 mode: 40 ~ 480 mm (1 5/8 - 19 in.) In CAMERA-MEMORY: 4:3 mode: 48 ~ 576 mm (1 15/16 - 22 3/4 in.) 16:9 mode: 43.6 ~ 523.2 mm (1 3/4 - 20 5/8 in.)
Color temperature	[AUTO], [ONE PUSH], [INDOOR] (3 200 K), [OUTDOOR] (5 800 K)
Minimum illumination	7 lx (lux) (F 1.8) 0 lx (lux) (during NightShot plus function)*3

*1 "Exif" is a file format for still images, established by the JEITA (Japan Electronics and Information Technology Industries Association). Files in this format can have additional information such as your camcorder's setting information at the time of recording.

*2 In 16:9 mode, the focal length figures are actual figures resulting from wide angle pixel readout.

*3 Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

DCR-HC42/HC42E/HC43/HC43E:

Audio/Video input/output	10-pin connector Input/output auto switch Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: DCR-HC42/HC43: 0.286 Vp-p, 75 Ω (ohms), unbalanced DCR-HC42E/HC43E: 0.3 Vp-p, 75 Ω (ohms), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Input impedance more than 47 kΩ (kilohms), Output impedance with less than 2.2 kΩ (kilohms)
LANC jack	Stereo mini-minijack (Ø 2.5 mm)

DCR-HC39E:

Audio/Video output	10-pin connector Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)
LANC jack	Stereo mini-minijack (Ø 2.5 mm)

LCD screen

Picture	6.9 cm (2.7 type, aspect ratio 16:9)
Total dot number	123 200 (560 × 220)

General

Power requirements	DC 7.2 V (battery pack) DC 8.4 V (AC Adaptor)
Average power consumption	DCR-HC42/HC43: During camera recording using the viewfinder 2.6 W During camera recording using the LCD 3.0 W During camera recording using the viewfinder and the LCD 3.2 W DCR-HC39E/HC42E/HC43E: During camera recording using the viewfinder 2.5 W During camera recording using the LCD 2.9 W During camera recording using the viewfinder and the LCD 3.1 W
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	-20 °C to + 60 °C (-4 °F to + 140 °F)
Dimensions (approx.)	54.7 × 90 × 111.7 mm (2 1/4 × 3 5/8 × 4 1/2 in.) (w/h/d)
Mass (approx.)	410 g (14 oz) main unit only 470 g (1 lb) including the NP-FP50 rechargeable battery pack and DVM60 cassette.
Supplied accessories	"Memory Stick Duo" 16MB (1) (DCR-HC43E) Memory Stick Duo adaptor (1) (DCR-HC43E) AC Adaptor (1) Power cord (1) Handycam Station (1) Wireless Remote Commander (1) A/V connecting cable (1) USB cable (1) Shoulder Strap (1) Rechargeable battery pack (1) CD-ROM "Picture Package Ver.1.5" (1) 21-pin adaptor (1) (AEP, UK) Conversion 2P adaptor (1) (E, JE) Shoe cover (1) Operating Guide (1) See page 5-23.

Handycam Station DCRA-C121 (DCR-HC42/HC42E/HC43/HC43E)

Audio/Video input/output	10-pin connector Input/output auto switch Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: DCR-HC42/HC43: 0.286 Vp-p, 75 Ω (ohms), unbalanced DCR-HC42E/HC43E: 0.3 Vp-p, 75 Ω (ohms), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Input impedance more than 47 kΩ (kilohms), Output impedance with less than 2.2 kΩ (kilohms)
USB jack	mini-B
DV input/output	4-pin connector

DCRA-C123 (DCR-HC39E)

Audio/Video output	10-pin connector Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)
USB jack	mini-B
DV output	4-pin connector

AC Adaptor AC-L25A/L25B

Power requirements	AC 100 - 240 V, 50/60 Hz
Current consumption	0.35 - 0.18 A
Power consumption	18 W
Output voltage	DC 8.4 V*
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	-20 °C to + 60 °C (-4 °F to + 140 °F)
Dimensions (approx.)	56 × 31 × 100 mm (2 1/4 × 1 1/4 × 4 in.) (w/h/d) excluding the projecting parts
Mass (approx.)	190 g (6.7 oz) excluding the mains lead

* See the label on the AC Adaptor for other specifications.

Rechargeable battery pack NP-FP50

Maximum output voltage	DC 8.4 V
Output voltage	DC 7.2 V
Capacity	4.9 wh (680 mAh)
Dimensions (approx.)	31.8 × 18.5 × 45.0 mm (1 5/16 × 3/4 × 1 13/16 in.) (w/h/d)
Mass (approx.)	40 g (1.5 oz)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Type	Lithium ion

Design and specifications are subject to change without notice.

自己診断搭載機種 HANDYCAM MEMORY STICK TM InfoLITHIUM TM P SERIES

概略仕様

システム

録画方式	回転2ヘッドヘリカルスキャン
静止画記録方式	Exif Ver.2.2*1)
録音方式	回転2ヘッド 12ビット32kHz （ステレオ1、ステレオ2） 16ビット48kHz（ステレオ）
映像信号	NTSCカラー、EIA標準方式
使用可能カセット	Mini DVマークのついたミニDVカセット
テープ速度	SP：約18.81mm/秒 LP：約12.56mm/秒
録画/再生時間	SP：60分 LP：90分 （DVM60使用時）
早送り、巻き戻し時間	約2分40秒（DVM60使用時）
ファインダー	電子ファインダー：カラー
撮像素子	3.27mm（1/5.5型）CCD固体撮像素子 総画素数：約107万画素 静止画時有効画素数：約100万画素 動画時有効画素数：約69万画素
ズームレンズ	カール ツァイス バリオ テッサー 12倍（光学）、150倍（デジタル） f=3.0～36mm 35mmカメラ換算では 「撮る－テープ」時： 46～628.5mm （16:9モード）*2) （4:3モードでは40～480mm） 「撮る－メモリー」時： 48～576mm（4:3モード） （16:9モードでは43.6～523.2mm） F1.8～2.5 フィルター径25mm
色温度切り換え	[オート]、[ワンプッシュ]、 [屋内]（3 200K）、 [屋外]（5 800K）
最低被写体照度	15 lx（ルクス）（F1.8） 0 lx（ルクス）（NightShot plus時）

*1) （社）電子情報技術産業協会（JEITA）にて制定された、撮影情報などの付帯情報を追加することができる静止画用のファイルフォーマット。

*2) 16:9時は広角画素読み出しによる実動作値

入/出力端子

映像/音声端子	10ピン特殊コネクター 入力/出力自動切り換え 映像：1 Vp-p　75 Ω不平衡 Y出力　1Vp-p　75 Ω不平衡 C出力　0.286Vp-p　75 Ω不平衡 音声：327mV（47 kΩ負荷時）、入力インピーダンス47 kΩ以上、出力インピーダンス2.2 kΩ以下
LANC端子	ステレオミニミニジャック （ø 2.5）

液晶画面

画面サイズ	6.9cm（2.7型、アスペクト比16：9）
総ドット数	123 200ドット 横560×縦220

電源部、その他

電源電圧	バッテリー端子入力7.2V DC端子入力8.4V
消費電力	2.6W（ファインダー使用時、明るさ標準） 3.0W（液晶画面使用時、明るさ標準） 3.2W（ファインダー、液晶画面使用時、明るさ標準）
動作温度	0℃～＋40℃
保存温度	－20℃～＋60℃
外形寸法	約54.7×90×111.7mm （最大突起部を除く）（幅×高さ×奥行き）
本体質量	約 410g（本体のみ）
撮影時総質量	約 470g（バッテリー NP-FP50、テープ（DVM60）含む。）
付属品	ACアダプター（1） 電源コード（1） ハンディカムステーション（1） ワイヤレスリモコン（1） AV接続ケーブル（1） USBケーブル（1） リチャージャブルバッテリーパック　NP-FP50（1） CD-ROM「Picture Package Ver.1.5」（1） シューカバー（1） 取扱説明書　（1） 安全のために（1） 保証書（1）

ハンディカムステーション
DCRA-C121

映像/音声端子	10ピン特殊コネクター 入力/出力自動切り換え 映像：1 Vp-p　75 Ω不平衡 Y出力　1Vp-p　75 Ω不平衡 C出力　0.286Vp-p　75 Ω不平衡 音声：327mV（47 kΩ負荷時）、入力インピーダンス47 kΩ以上、出力インピーダンス2.2 kΩ以下
USB端子	mini-B
DV端子	i.LINK（IEEE1394　4ピンコネクター S100）

ACアダプター　AC-L25A/L25B

電源	AC100～240V、50/60Hz
消費電力	18W
定格出力	DC8.4V*
動作温度	0℃～＋40℃
保存温度	－20℃～＋60℃
外形寸法	約56×31×100mm （最大突起部をのぞく）（幅×高さ×奥行き）
質量	約190g（本体のみ）

* その他の仕様についてはACアダプターのラベルをご覧ください。

リチャージャブルバッテリーパック
NP-FP50

最大電圧	DC8.4V
公称電圧	DC7.2V
容量	4.9wh（680mAh）
最大外形寸法	約31.8×18.5×45.0mm （幅×高さ×奥行き）
質量	約40g
使用温度	0℃～＋40℃
使用電池	Li-ion

本機の仕様および外観は、改良のため予告なく変更することがありますが、ご了承ください。

Table for differences of function

Model	DCR-HC39E	DCR-HC41	DCR-HC42	DCR-HC42E
Destination	AEP, UK, NE, EE	J	US, CND, E, KR, JE	AEP, UK, NE, EE, E, AUS, HK, JE
Color system	PAL	NTSC	NTSC	PAL
Electrical viewfinder	Black and White	Color	Color	Color
Digital zoom	480 x	150 x	480 x	480 x
A/V jack	OUT	IN/OUT	IN/OUT	IN/OUT
DV Interface on the Cradle (Handycam Station)	OUT	IN/OUT	IN/OUT	IN/OUT

Model	DCR-HC43	DCR-HC43E
Destination	BR	CH, E
Color system	NTSC	PAL
Electrical viewfinder	Color	Color
Digital zoom	480 x	480 x
A/V jack	IN/OUT	IN/OUT
DV Interface on the Cradle (Handycam Station)	IN/OUT	IN/OUT

- Abbreviation

  AUS : Australian model
  BR : Brazilian model
  CH : Chinese model
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  J : Japanese model
  JE : Tourist model
  KR : Korea model
  NE : North European model

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

LF : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

注意
電池の交換は，正しく行わないと破裂する恐れがあります。電池を交換する場合には必ず同じ型名の電池又は同等品と交換してください。

サービス，点検時には次のことにご注意下さい。

1. **注意事項をお守りください。**
   サービスのとき特に注意を要する個所については，キャビネット，シャーシ，部品などにラベルや捺印で注意事項を表示しています。これらの注意書き及び取扱説明書等の注意事項を必ずお守り下さい。
2. **指定部品のご使用を**
   セットの部品は難燃性や耐電圧など安全上の特性を持ったものとなっています。従って交換部品は，使用されていたものと同じ特性の部品を使用して下さい。特に回路図，部品表に⚠印で指定されている安全上重要な部品は必ず指定のものをご使用下さい。
3. **部品の取付けや配線の引きまわしはもとどおりに**
   安全上，チューブやテープなどの絶縁材料を使用したり，プリント基板から浮かして取付けた部品があります。また内部配線は引きまわしやクランパによって発熱部品や高圧部品に接近しないよう配慮されていますので，これらは必ずもとどおりにして下さい。
4. **サービス後は安全点検を**
   サービスのために取外したネジ，部品，配線がもとどおりになっているか，またサービスした個所の周辺を劣化させてしまったところがないかなどを点検し，安全性が確保されていることを確認して下さい。
5. **チップ部品交換時の注意**
   - 取外した部品は再使用しないで下さい。
   - タンタルコンデンサのマイナス側は熱に弱いため交換時は注意して下さい。
6. **フレキシブルプリント基板の取扱いについて**
   - コテ先温度を270℃前後にして行なって下さい。
   - 同一パターンに何度もコテ先を当てないで下さい。
     （３回以内）
   - パターンに力が加わらないよう注意して下さい。
7. **無鉛半田について**
   無鉛半田を使用している基板には，無鉛（Lead Free）を意味するレッドフリーマークがプリントされています。
   （注意： 基板サイズによっては，無鉛半田を使用していてもレッドフリーマークがプリントされていないものがあります）
   LF：レッドフリーマーク
   無鉛半田には，以下の特性があります。
   - 融点が従来の半田よりも約40℃高い。
     従来の半田こてをそのまま使用することは可能ですが，少し長めにこてを当てる必要があります。
     温度調節機能のついた半田こてを使用する場合，約350℃に設定して下さい。
     注意：半田こてを長く当てすぎると，基板のパターン（銅箔）がはがれてしまうことがありますので，注意して下さい。
   - 粘性が強い
     従来の半田よりも粘性が強いため，IC端子などが半田ブリッジしないように注意して下さい。
   - 従来の半田と混ぜて使用可能
     無鉛半田には無鉛半田を追加するのが最適ですが，従来の半田を追加しても構いません。

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5. REPAIR PARTS LIST

5-1. Exploded Views ········
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5-1-2. F Panel Block ········
5-1-3. Lens Block ········
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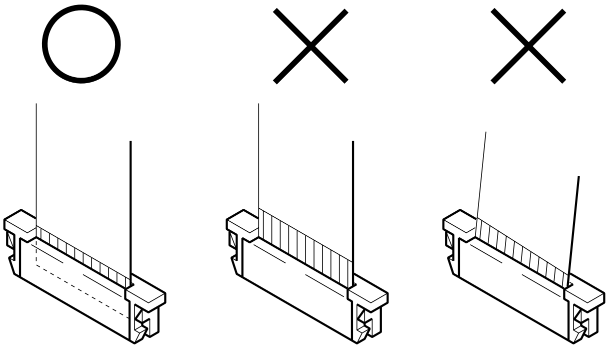
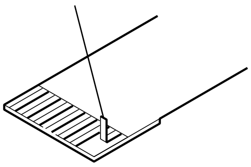
1. SERVICE NOTE

1-1. NOTE FOR REPAIR

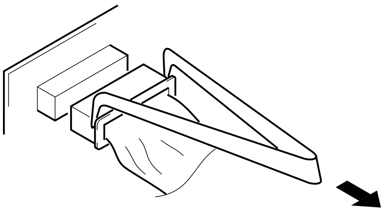
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



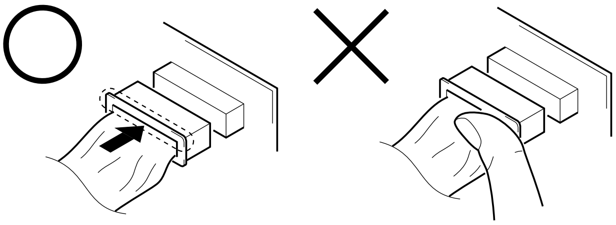
Cut and remove the part of gilt
which comes off at the point.
(Be careful or some
pieces of gilt may be left inside)



When remove a connector, don’t pull at wire of connector.
It is possible that a wire is snapped.



When installing a connector, don’t press down at wire of connector.
It is possible that a wire is snapped.



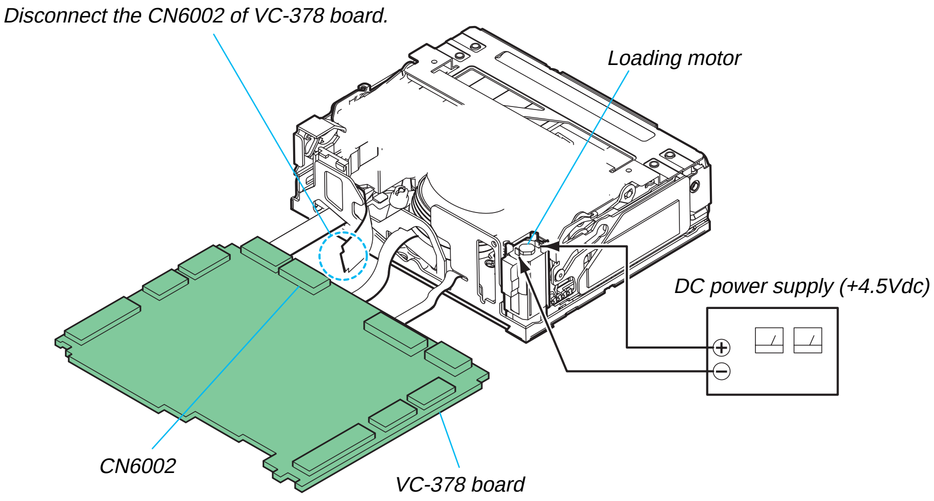
1-2. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
These following method is available to prevent this.

Method:
Use the AC power adaptor (AC-L25A/L25B).

1-3. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to “2. DISASSEMBLY” to remove the mechanism deck block.
② Disconnect the CN6002 of VC-378 board.
③ Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.


Disconnect the CN6002 of VC-378 board.
Loading motor
DC power supply (+4.5Vdc)
CN6002
VC-378 board

1-4. SELF-DIAGNOSIS FUNCTION

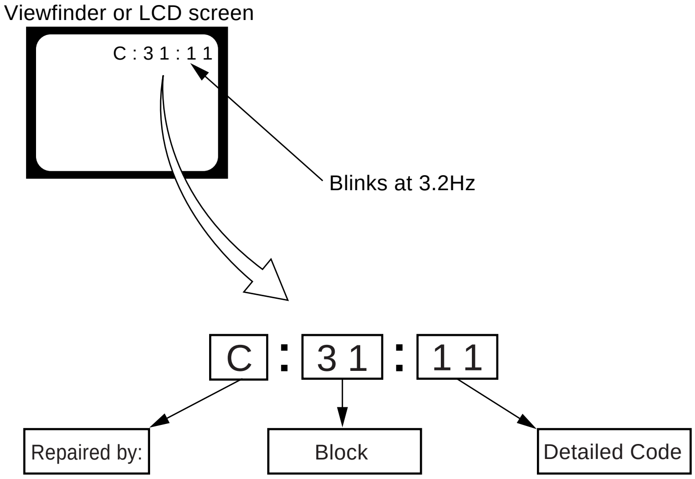
1-4-1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or LCD screen what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

1-4-2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or LCD screen shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.


Viewfinder or LCD screen
C : 3 1 : 1 1
Blinks at 3.2Hz
C : 3 1 : 1 1
Repaired by:
Block
Detailed Code

C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer

Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.

Refer to “1-4-3. Self-diagnosis Code Table”.

1-4-3. Self-diagnosis Code Table

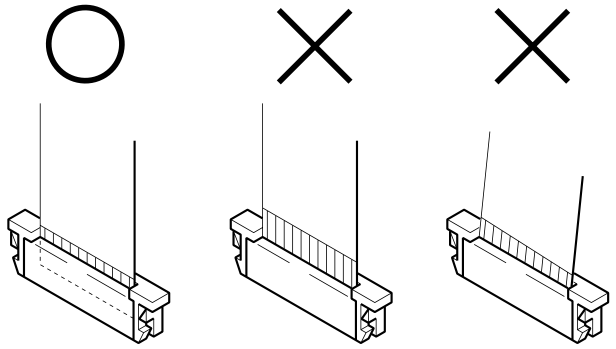
Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

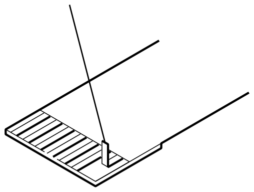
Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
E	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus MR sensor (Pin ②, ④ of CN3801 of VC-378 board) when focusing is performed when the touch panel is operated in the focus manual mode and the focus motor drive circuit (IC3803 of VC-378 board) when the focusing is not performed.
E	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ㉒ of CN3801 of VC-378 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC3803 of VC-378 board) when zooming is not performed.
E	6	1	1	1	Focus lens initializing failure and zoom lens initializing failure occur simultaneously.	Inspect the flexible board for breakage or loose connection. If not faulty, inspect the focus and zoom motor drive circuit (IC3803 of VC-378 board).
E	6	2	0	0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE601 of SI-042 board) peripheral circuits.
E	6	2	0	1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE602 of SI-042 board) peripheral circuits.

1. SERVICE NOTE

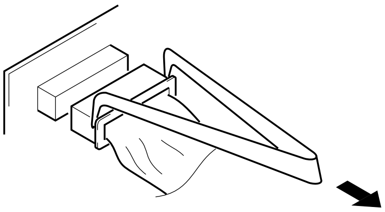
1-1. 修理時の注意

フラットケーブルおよびフレキシブル基板の端子面に欠け，折れ等がないことを確認する。
また，コネクタへの接続は，差し込み不足や斜め差しにならないように注意する。

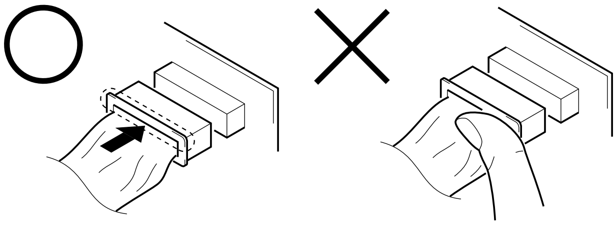



先端の剥がれたメッキ部はカットして除去する。
（メッキ破片がコネクタ内に残っている場合もあるので注意）

コネクタを取り外す時に，線材部(極細)を持って引っ張ると断線する恐れがありますので，絶対に線材部(極細)を持って引っ張らないで下さい。



線材部(極細)を押さえながらコネクタを差し込むと，線材部(極細)が断線する恐れがありますので，絶対に線材部(極細)には負担をかけないで下さい。



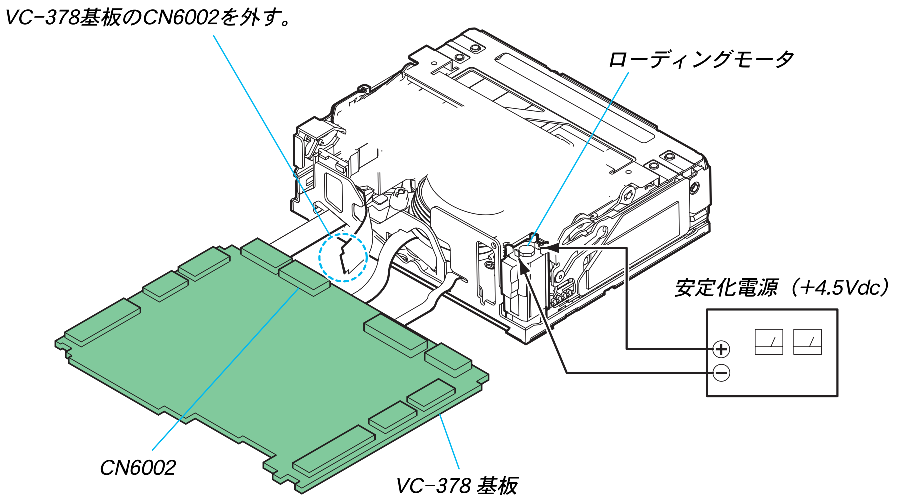
1-2. 修理／調整時の電源供給について

本機では，安定化電源(8.4Vdc)からバッテリ端子に電源を供給した場合，約10秒後にシャットオフし，動作しなくなります。
これを避けるため，下記の方法を用いてください。

方法：
DC入力端子を使用する。（ACアダプタ(AC-L25A/L25Bなど)を使用する。）

1-3. イジェクトしない時のカセット取出し方法（強制イジェクト）

① 2. DISASSEMBLYを参照し，メカデッキを外す。
② VC-378基板CN6002（27P）を外す。
③ カセコン組立を押さえながら，安定化電源より＋4.5Vをローディングモータに加え，アンローディングさせる。


VC-378基板のCN6002を外す。
ローディングモータ
安定化電源（+4.5Vdc）
⊕
⊖
CN6002
VC-378 基板

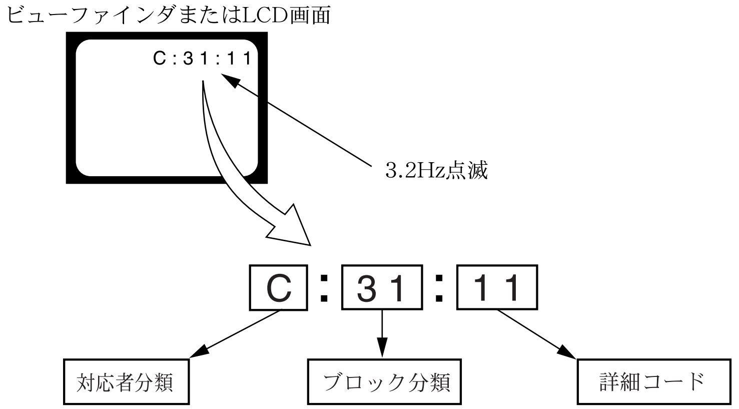
1-4. 自己診断機能

1-4-1. 自己診断機能について

本機の動作に不具合が生じたとき，自己診断機能が働き，ビューファインダまたはLCD画面に，どう処置したらよいか判断できる表示を行います。「自己診断表示」と「サービスモード表示」の2つの表示があります。自己診断機能については取扱説明書にも掲載されています。

1-4-2. 自己診断表示

本機の動作に不具合が生じたとき，ビューファインダまたはLCD画面のカウンタ表示部分がアルファベットと数字の4桁表示になり，3.2Hzで点滅します。この5文字の表示によって対応者分類および不具合の生じたブロックの分類，不具合の詳細コードを示します。


ビューファインダまたはLCD画面
C : 3 1 : 1 1
3.2Hz点滅
C : 31 : 11
対応者分類
ブロック分類
詳細コード

C ：お客さま自身で対応
H ：販売店で対応
E ：サービスエンジニア
　　で対応

対応方法の違いにより分類
例　31･･･テープを入れ直す
　　32･･･電源を入れ直す

「1-4-3. 自己診断コード表」を参照

1-4-3. 自己診断コード表

自己診断コード			症状／状態	対応／方法
対応者	ブロック機能	詳細コード		
C	0 4	0 0	標準でないバッテリを使用している	インフォリチウムバッテリを使用する
C	2 1	0 0	結露している	カセットを取り出して，約1時間してからもう一度入れ直す
C	2 2	0 0	ビデオヘッドが汚れている	別売のクリーニングカセットできれいにする
C	3 1	1 0	LOAD方向，ローディング所定時間内終了せず	テープを入れ直し，再度操作し直す
C	3 1	1 1	UNLOAD方向，ローディング所定時間内終了せず	テープを入れ直し，再度操作し直す
C	3 1	2 0	UNLOAD時，Tリール側テープ弛み	テープを入れ直し，再度操作し直す
C	3 1	2 1	UNLOAD時，Sリール側テープ弛み	テープを入れ直し，再度操作し直す
C	3 1	2 2	Tリール異常	テープを入れ直し，再度操作し直す
C	3 1	2 3	Sリール異常	テープを入れ直し，再度操作し直す
C	3 1	3 0	キャプスタン起動時FG異常	テープを入れ直し，再度操作し直す
C	3 1	3 1	キャプスタン定常時FG異常	テープを入れ直し，再度操作し直す
C	3 1	4 0	ドラム起動時FG異常	テープを入れ直し，再度操作し直す
C	3 1	4 1	ドラム起動時PG異常	テープを入れ直し，再度操作し直す
C	3 1	4 2	ドラム定常時FG異常	テープを入れ直し，再度操作し直す
C	3 1	4 3	ドラム定常時PG異常	テープを入れ直し，再度操作し直す
C	3 1	4 4	ドラム定常時位相異常	テープを入れ直し，再度操作し直す
C	3 2	1 0	LOAD方向，ローディング所定時間内終了せず	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	1 1	UNLOAD方向，ローディング所定時間内終了せず	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	2 0	UNLOAD時，Tリール側テープ弛み	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	2 1	UNLOAD時，Sリール側テープ弛み	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	2 2	Tリール異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	2 3	Sリール異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	3 0	キャプスタン起動時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	3 1	キャプスタン定常時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	4 0	ドラム起動時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	4 1	ドラム起動時PG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	4 2	ドラム定常時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	4 3	ドラム定常時PG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す
C	3 2	4 4	ドラム定常時位相異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す

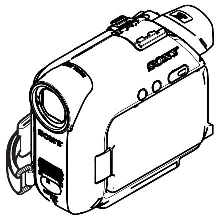
自己診断コード			症状／状態	対応／方法
対応者	ブロック機能	詳細コード		
E	6 1	0 0	フォーカスが合いにくい （フォーカスの初期化ができない）	フォーカス手動モードでタッチパネルを操作した時，フォーカス動作をすればレンズブロックのフォーカスMRセンサ（VC-378基板CN3801 ②，④ピン）を点検。フォーカス動作をしなければフォーカスモータドライブ回路（VC-378基板IC3803）を点検。
E	6 1	1 0	ズーム動作の異常（ズームレンズの初期化ができない）	ズームレバーを操作した時，ズーム動作をすればレンズブロックのズームリセットセンサ（VC-378基板CN3801 ㉒ピン）を点検。ズーム動作をしなければズームモータドライブ回路（VC-378基板IC3803）を点検。
E	6 1	1 1	フォーカスレンズ初期化異常，ズームレンズ初期化異常の同時発生	フレキシブル基板の切れ，半挿しを点検。 問題がなければフォーカス，ズームモータドライブ回路（VC-378基板IC3803）を点検。
E	6 2	0 0	手振れ補正が効きにくい （PITCH角速度センサ出力張り付き）	PITCH角速度センサ（SI-042基板SE601）周辺回路点検
E	6 2	0 1	手振れ補正が効きにくい （YAW角速度センサ出力張り付き）	YAW角速度センサ（SI-042基板SE602）周辺回路点検

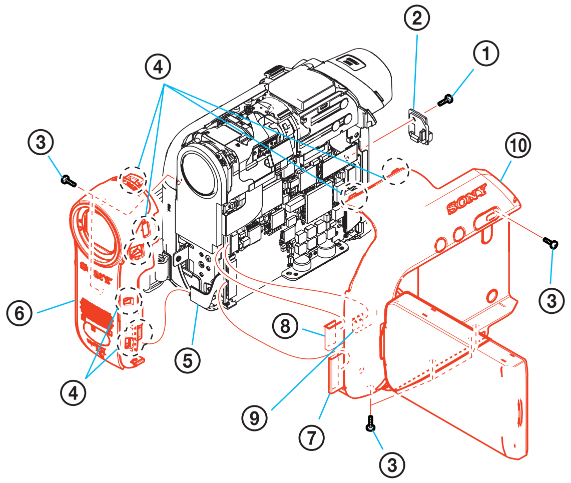
HELP

2. DISASSEMBLY

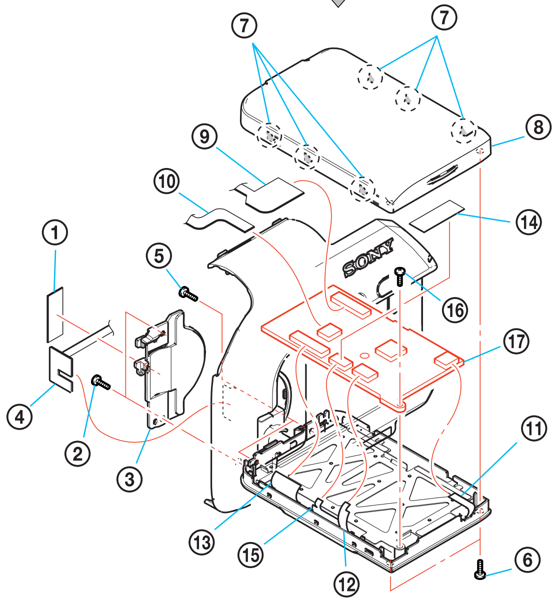
The following flow chart shows the disassembly procedure.

2-1. DISASSEMBLY

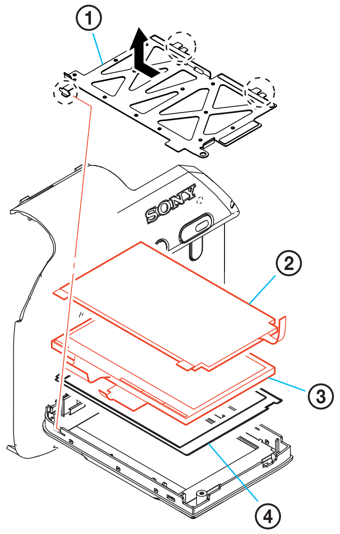




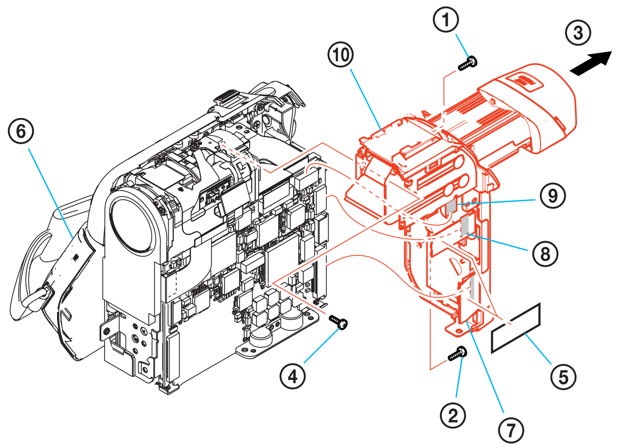
① P2 lock ace screw (M1.7) *x1*
② Cpc lid
③ Screw (M1.7) *x7*
④ Claw *x8*
⑤ Flexible flat cable (FFC-038): CN603
⑥ F panel block
⑦ FP-190 flexible board: CN1003
⑧ FP-185 flexible board: CN1006
⑨ FP-187 flexible board: CN1002
⑩ Cabinet (R) block



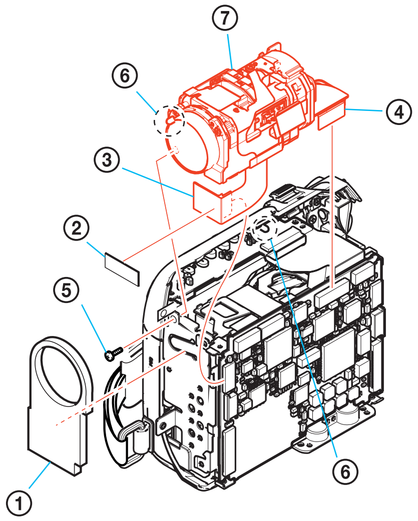
① Tape (A) *x1*
② P2 tapping screw *x2*
③ Hinge blind
④ FP-187 flexible board
⑤ Tapping screw *x2*
⑥ P2 tapping screw *x2*
⑦ Claw *x6*
⑧ P cabinet (C (106))
⑨ FP-185 flexible board: CN601
⑩ FP-186 flexible board: CN609
⑪ Flexible board: CN608
⑫ Control key block (SB10600): CN602
⑬ Flexible board: CN605
⑭ Tape (W) *x1*
⑮ Flexible board: CN603
⑯ P2 tapping screw *x1*
⑰ PD-238 board



① Slide the CF retainer
in the direction of arrow.
② D901
③ LCD901
④ Panel cushion (106)

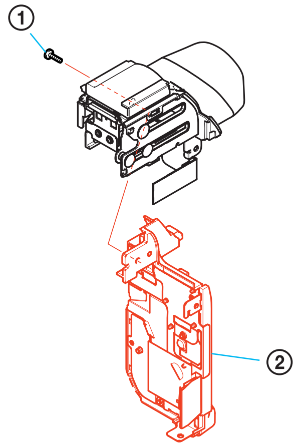


① P2 lock ace screw (M1.7) *x1*
② P2 lock ace screw (M1.7) *x1*
③ Slide the EVF block.
④ P2 tappping screw *x1*
⑤ Tape (A) *x2* HELP
⑥ Open the cabinet (G) block.
⑦ FP-180 flexible board: CN2001
⑧ FP-181 flexible board: CN7001
⑨ FP-184 flexible board: CN1005
⑩ BAT EVF block



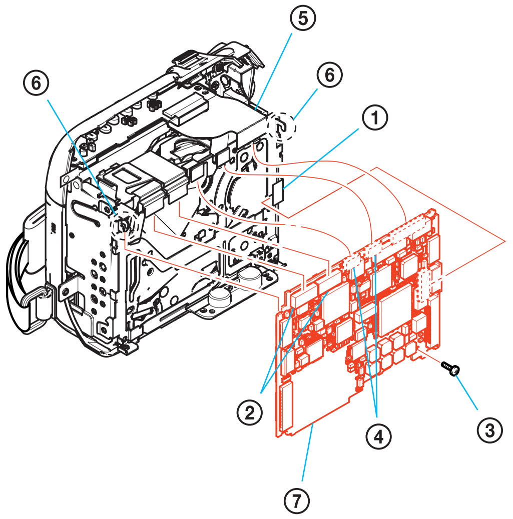
① Cushion (F2)
② Tape (W) *x1*
③ Flexible board: CN 3801
④ FP-179 flexible board: CN3201
⑤ P2 lock ace screw (M1.7) *x1*
⑥ Boss *x2*
⑦ Lens block

to Page 2-3

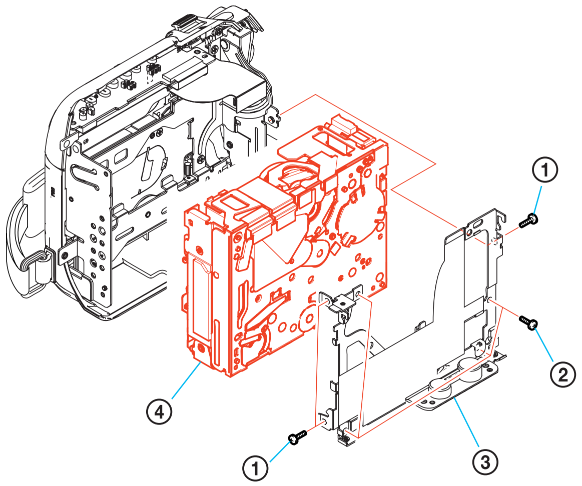


① Screw (M1.7) *x1*
② BT panel block

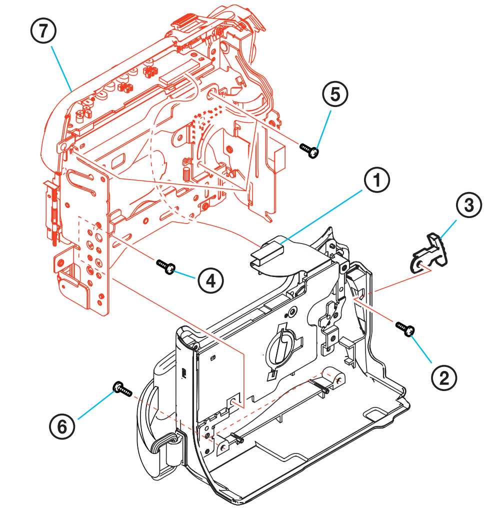
from Page 2-2



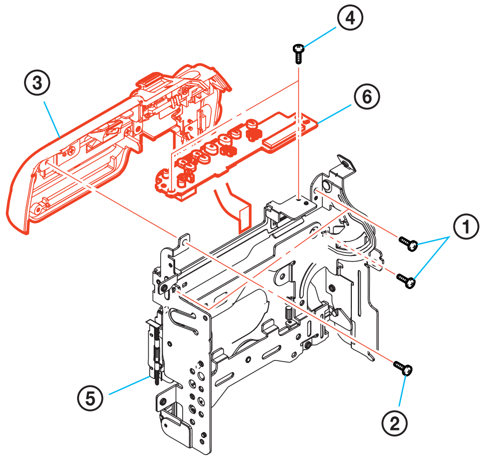
① Flexible board: CN1001
② Connector *x2*: CN6002, 6003
③ P2 lock ace screw (M1.7) *x1*
④ Connector *x2*: CN4301, 6001
⑤ FP-182 flexible board: CN1008
⑥ Hook *x2*
⑦ VC-378 board



① P2 lock ace screw (M1.7) *x3*
② Screw (M1.4x1.5) *x4*
③ MD frame block
④ Mechanism deck

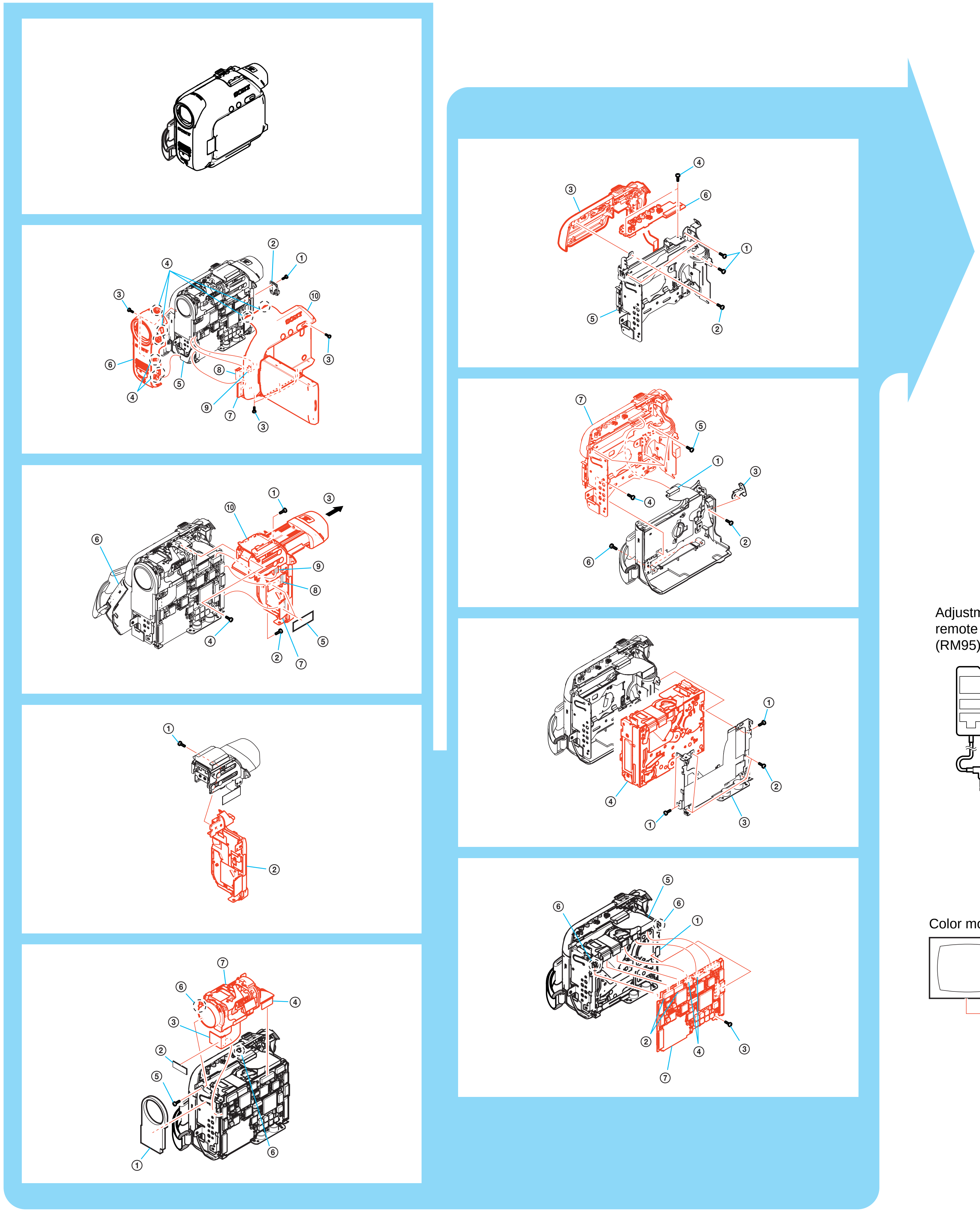


① Flexible board: CN704
② P2 lock ace screw (M1.7) *x1*
③ Eject knob
④ P2 lock ace screw (M1.7) *x1*
⑤ Tapping screw *x3*
⑥ P2 lock ace screw (M1.7) *x2*
⑦ CS block



① P2 tapping screw *x3*
② P2 lock ace screw (M1.7) *x1*
③ Control key block (SS10300)
④ P2 lock ace screw (M1.7) *x2*
⑤ CS frame block
⑥ JK-278 board

2-2. MECHANISM DECK SERVICE POSITION



Connection to Check the Mechanism deck

To check the mechanism deck, set the Camera or VTR to the "Forced power ON" mode.
(Or, connect the control key block (SS10300) to the CN1001 of VC-378 board and set the power switch to the "CAMERA" or "PLAY/EDIT" position.)
Operate the VTR function using the adjustment remote commander
(with the HOLD switch set in the OFF position).

Setting the "Forced Camera Power ON" mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: A, address: 10, set data: 01 and press the PAUSE button of the adjustment remote commander.

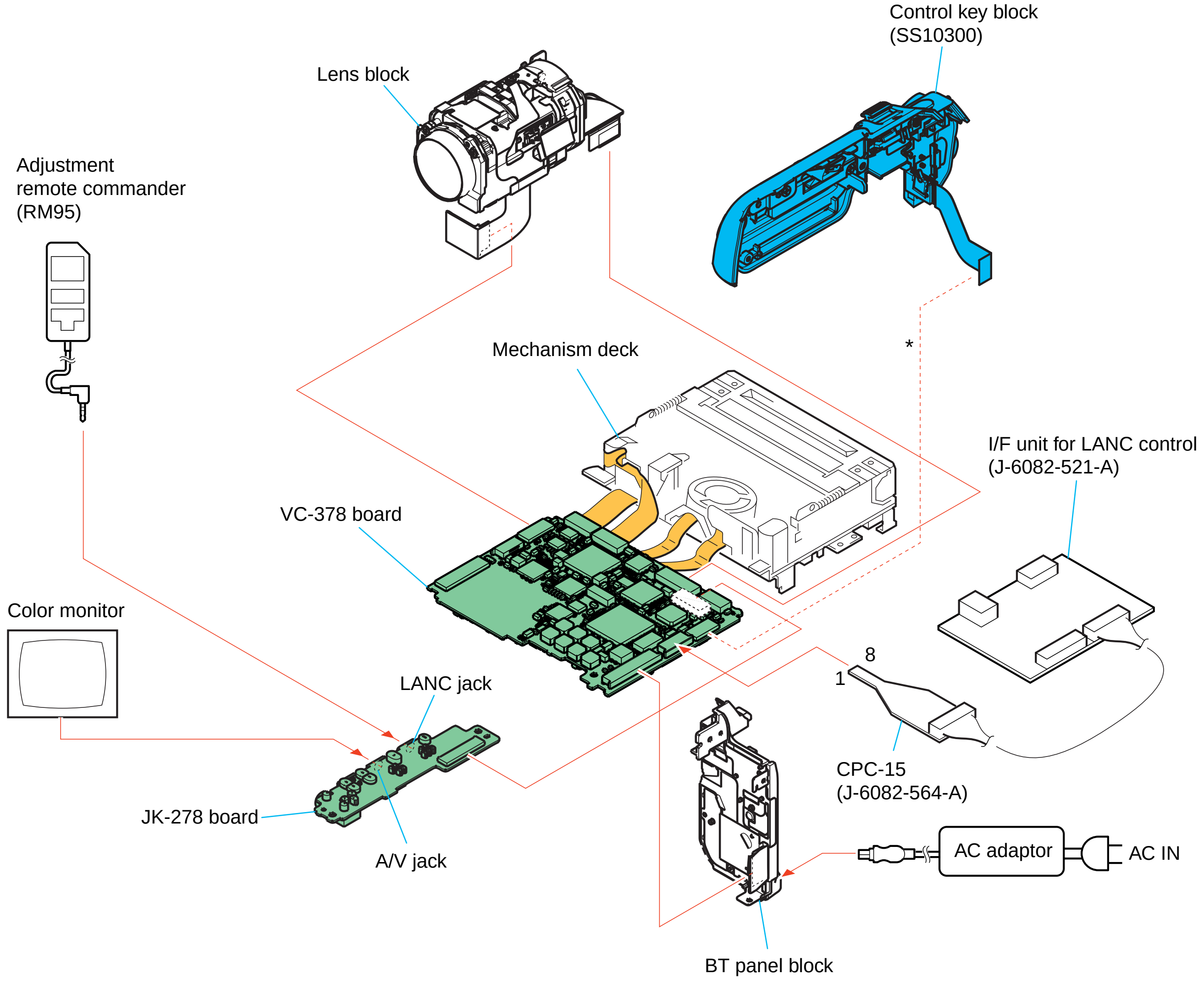
Setting the "Forced VTR Power ON" mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: A, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

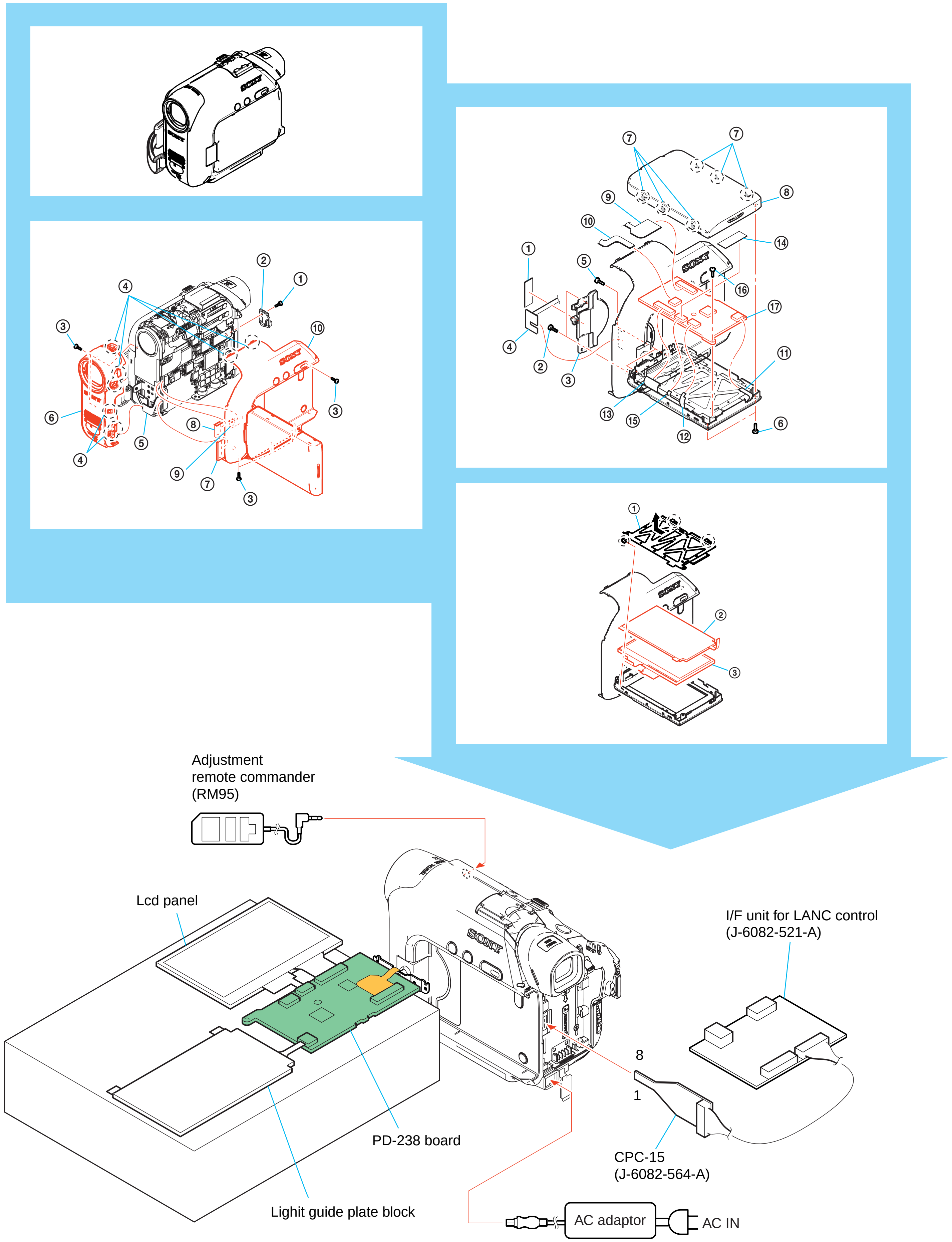
Exiting the "Forced Power ON" mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: A, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

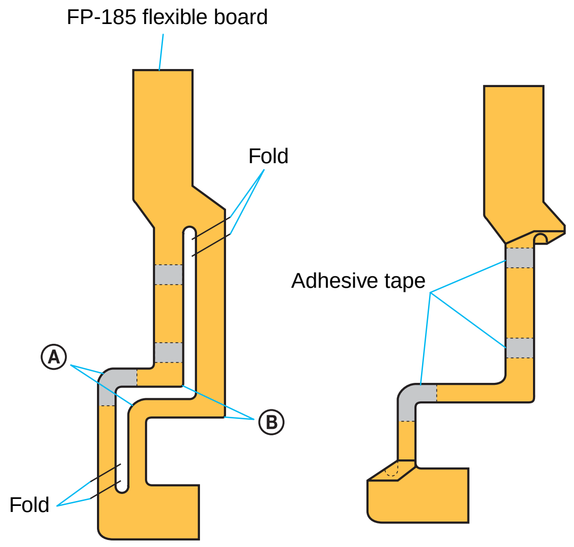
*: To eject a cassette, connect the cabinet (L) block assembly.


Control key block
(SS10300)
Lens block
Adjustment
remote commander
(RM95)
Mechanism deck
*
I/F unit for LANC control
(J-6082-521-A)
VC-378 board
Color monitor
LANC jack
8
1
CPC-15
(J-6082-564-A)
JK-278 board
A/V jack
AC adaptor
AC IN
BT panel block

2-3. LCD SERVICE POSITION

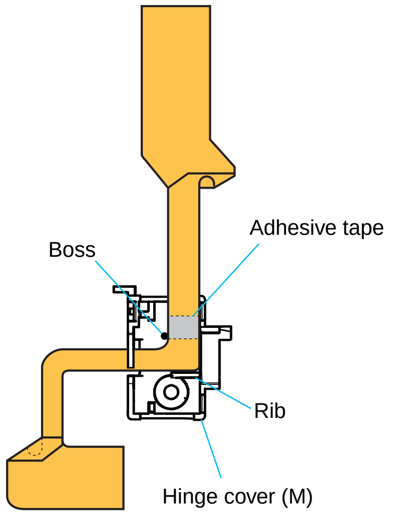

Adjustment
remote commander
(RM95)
Lcd panel
I/F unit for LANC control
(J-6082-521-A)
8
1
PD-238 board
CPC-15
(J-6082-564-A)
Light guide plate block
AC adaptor
AC IN

2-4. THE METHOD OF ATTACHMENT OF FP-185 FLEXIBLE BOARD

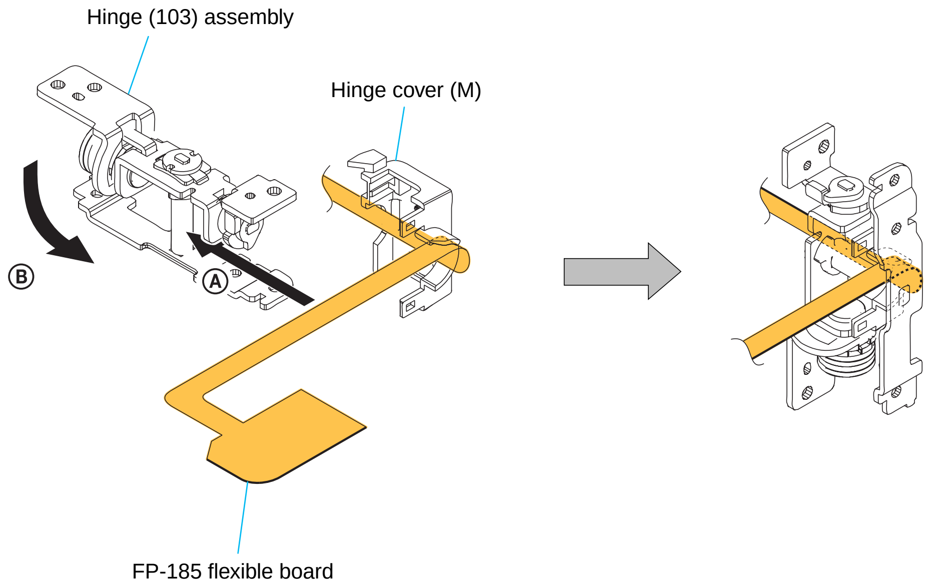

FP-185 flexible board
Fold
Adhesive tape
Ⓐ
Ⓑ
Fold

①The Ⓐ and Ⓐ, Ⓑ and Ⓑ section are united and an angle is folded.

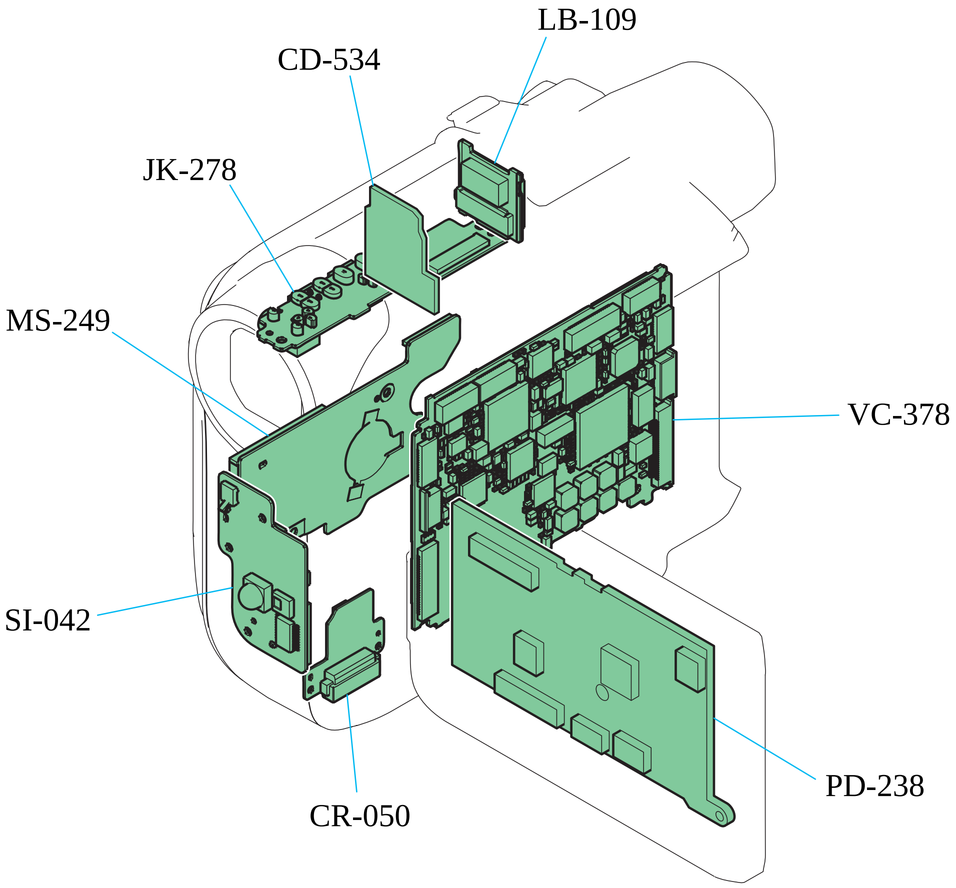
②Set the hinge cover (M) inthe shown below.


Boss
Adhesive tape
Rib
Hinge cover (M)

③Set the FP-185 flexible board in the direction of arrow Ⓐ, and then turn the hinge (103) assembly in the direction of arrow Ⓑ.

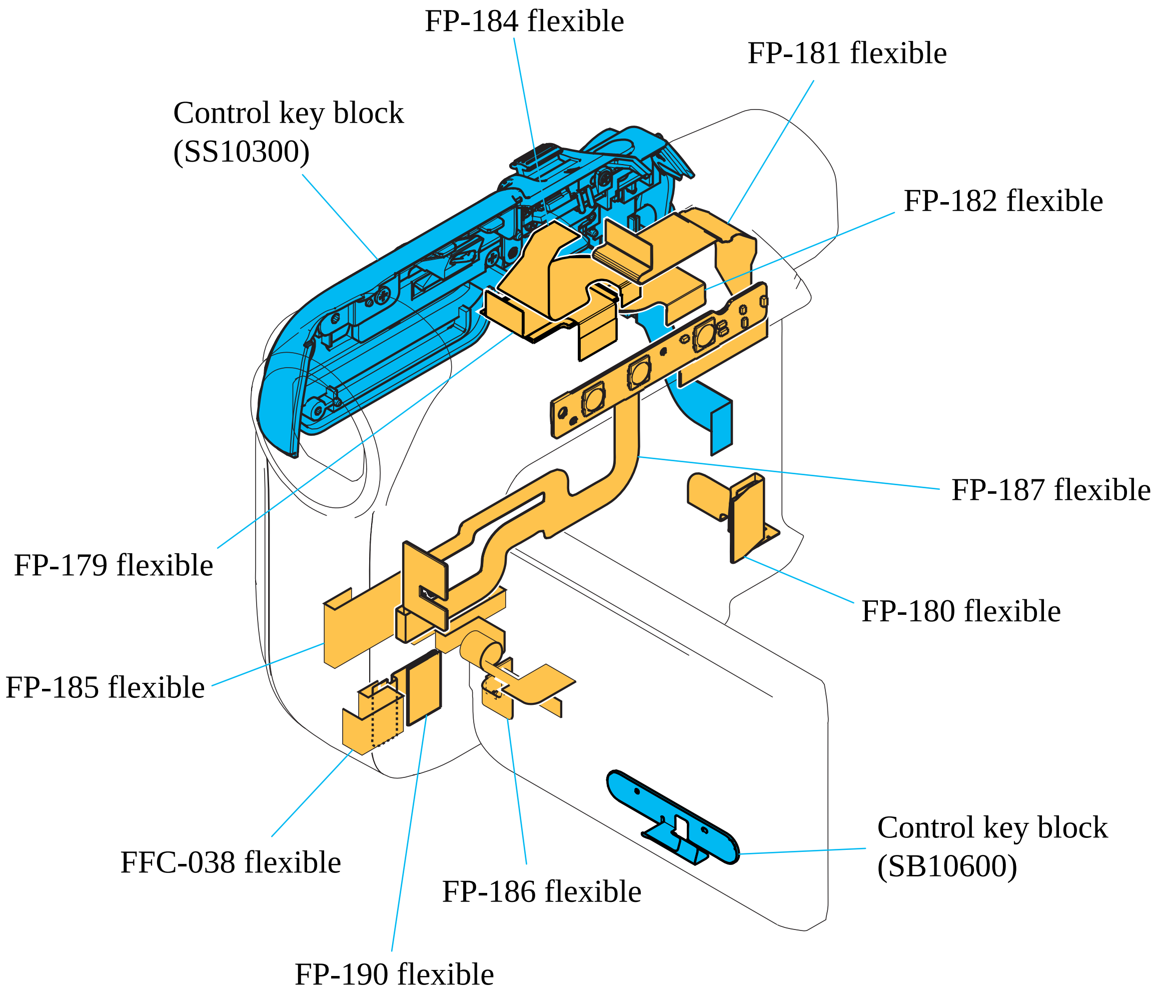

Hinge (103) assembly
Hinge cover (M)
Ⓑ
Ⓐ
FP-185 flexible board

2-5. CIRCUIT BOARDS LOCATION


LB-109
CD-534
JK-278
MS-249
VC-378
SI-042
PD-238
CR-050

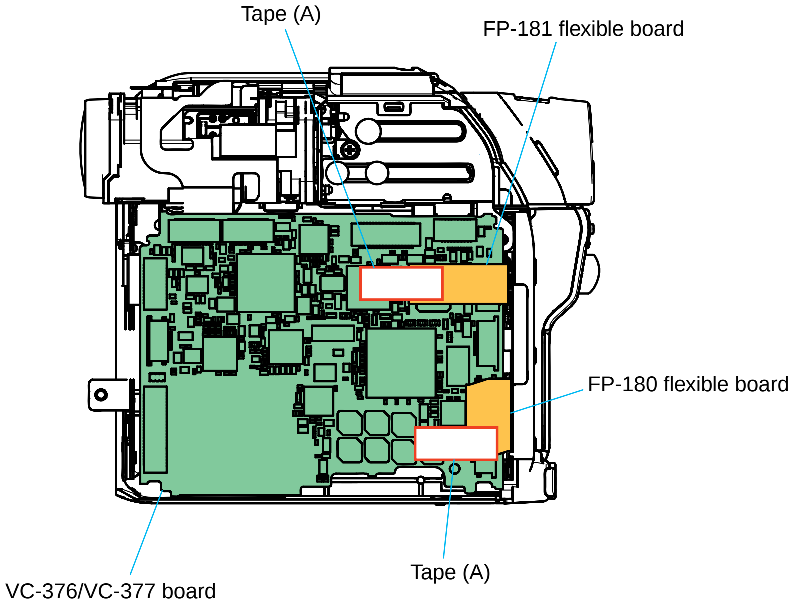
Board Name	Function
CD-534	CCD IMAGER
CR-050	CRADLE TERMINAL
JK-278	JACK
LB-109	EVF, EVF BACKLIGHT
MS-249	MS CONNECTOR
PD-238	LCD DRIVE, BACKLIGHT DRIVE
SI-042	REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR
VC-378	A/D CONVERTER, TIMING GENERATOR, LENS DRIVE, CAMERA SIGNAL PROCESS, VIDEO/AUDIO DSP, DS/HI CONTROL, FLASH, SDRAM, DV SIGNAL PROCESS, DV INTERFACE, REC/PB AMP, ASPECT RATIO CONVERTER, VIDEO, AUDIO I/O, MIC AMP, EVF DRIVE, CAMERA/MECHA CONTROL, SERVO, HI CONTROL, DC IN, DC/DC CONVERTER, CONNECTOR

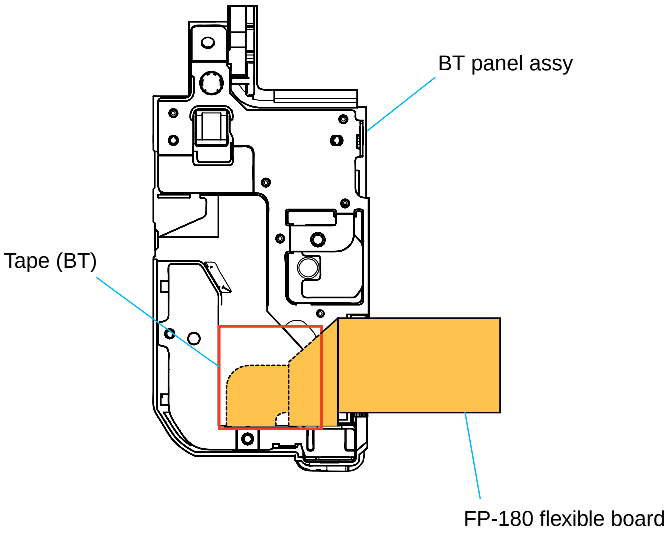
2-6. FLEXIBLE BOARDS LOCATION


FP-184 flexible
FP-181 flexible
Control key block
(SS10300)
FP-182 flexible
FP-187 flexible
FP-179 flexible
FP-180 flexible
FP-185 flexible
FFC-038 flexible
FP-186 flexible
Control key block
(SB10600)
FP-190 flexible

HELP

Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.


Tape (A)
FP-181 flexible board
FP-180 flexible board
VC-376/VC-377 board
Tape (A)


BT panel assy
Tape (BT)
FP-180 flexible board

3. BLOCK DIAGRAMS

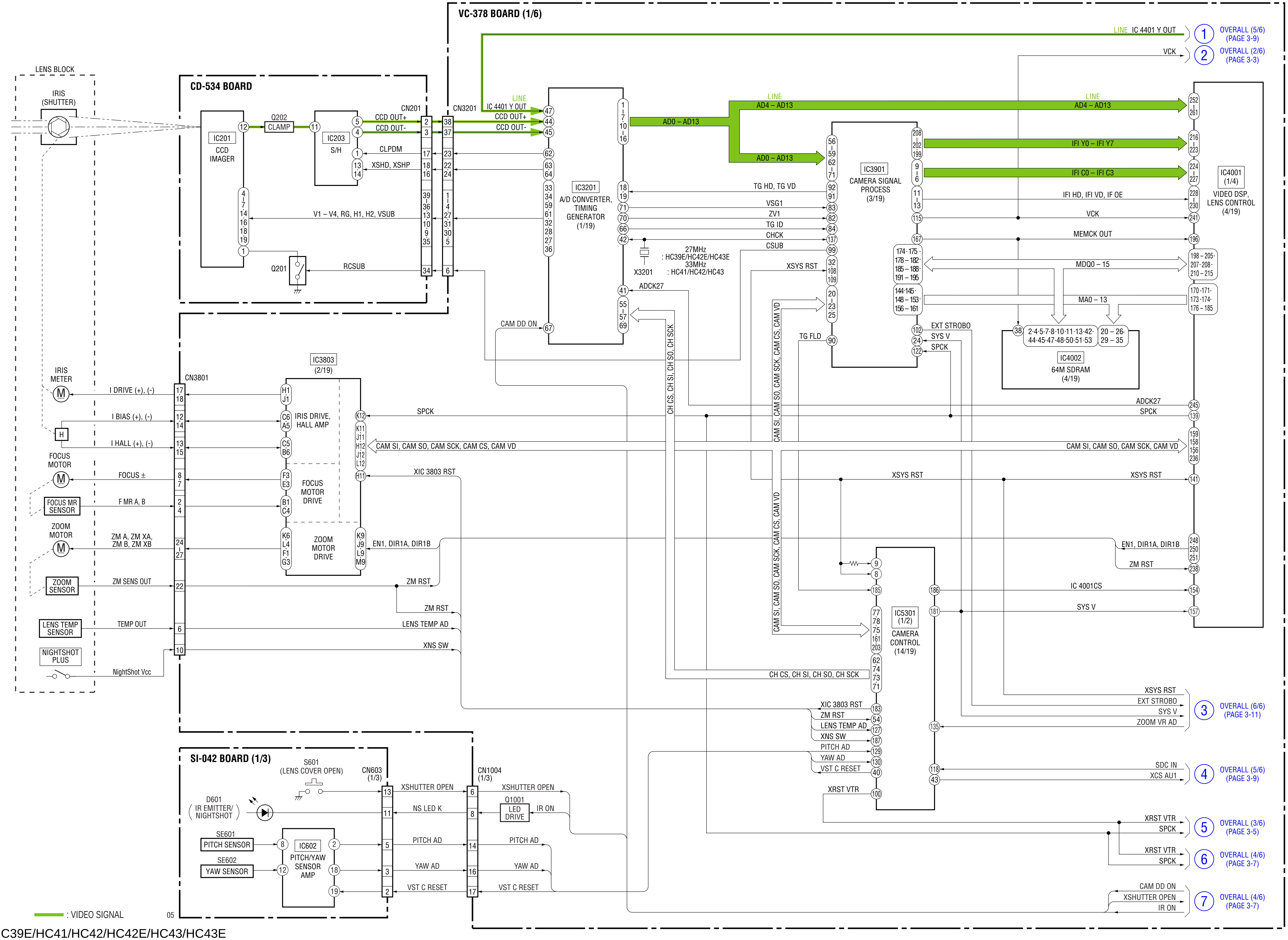
Link

- OVERALL BLOCK DIAGRAM (1/6)
- OVERALL BLOCK DIAGRAM (2/6)
- OVERALL BLOCK DIAGRAM (3/6)
- OVERALL BLOCK DIAGRAM (4/6)
- OVERALL BLOCK DIAGRAM (5/6)
- OVERALL BLOCK DIAGRAM (6/6)
- POWER BLOCK DIAGRAM (1/3)
- POWER BLOCK DIAGRAM (2/3)
- POWER BLOCK DIAGRAM (3/3)

3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



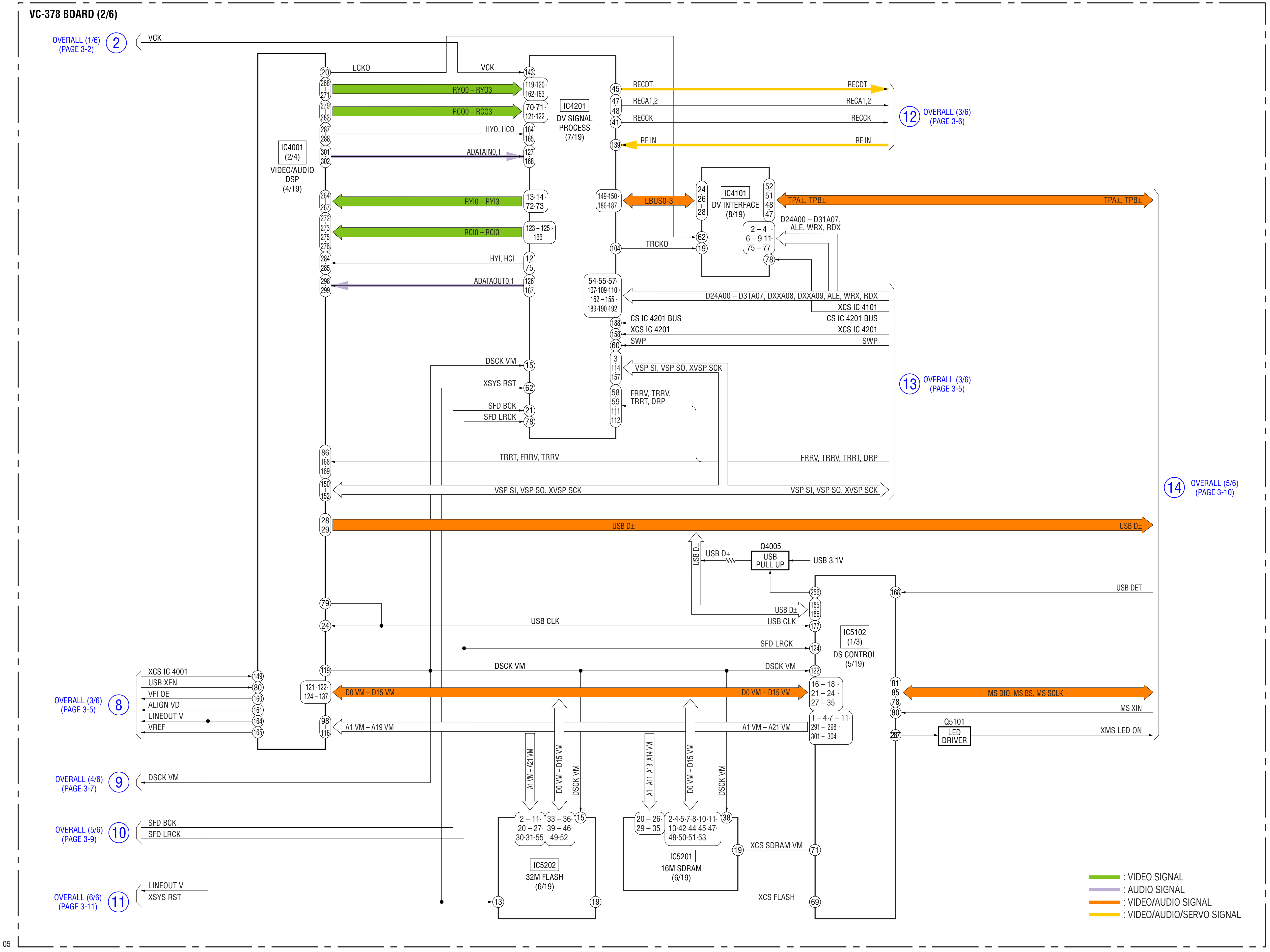
VC-378 BOARD (1/6)
LENS BLOCK
IRIS (SHUTTER)
CD-534 BOARD
IC201 CCD IMAGER
Q202 CLAMP
IC203 S/H
CN201
CCD OUT+
CCD OUT-
CLPDM
XSHD, XSHP
V1 – V4, RG, H1, H2, VSUB
Q201
RCSUB
CN3201
LINE
IC 4401 Y OUT
IC3201 A/D CONVERTER, TIMING GENERATOR (1/19)
AD0 – AD13
AD4 – AD13
IC3901 CAMERA SIGNAL PROCESS (3/19)
IFI Y0 – IFI Y7
IFI C0 – IFI C3
IFI HD, IFI VD, IF OE
IC4001 (1/4) VIDEO DSP, LENS CONTROL (4/19)
TG HD, TG VD
VSG1
ZV1
TG ID
CHCK
CSUB
VCK
MEMCK OUT
27MHz : HC39E/HC42E/HC43E
33MHz : HC41/HC42/HC43
X3201
XSYS RST
ADCK27
MDQ0 – 15
MA0 – 13
CAM DD ON
TG FLD
EXT STROBO
SYS V
SPCK
IC4002 64M SDRAM (4/19)
CH CS, CH SI, CH SO, CH SCK
CAM SI, CAM SO, CAM SCK, CAM CS, CAM VD
IRIS METER
CN3801
IC3803 (2/19)
I DRIVE (+), (-)
I BIAS (+), (-)
I HALL (+), (-)
IRIS DRIVE, HALL AMP
FOCUS MOTOR
FOCUS ±
FOCUS MR SENSOR
F MR A, B
FOCUS MOTOR DRIVE
ZOOM MOTOR
ZM A, ZM XA, ZM B, ZM XB
ZOOM MOTOR DRIVE
ZOOM SENSOR
ZM SENS OUT
XIC 3803 RST
EN1, DIR1A, DIR1B
ZM RST
LENS TEMP SENSOR
TEMP OUT
LENS TEMP AD
NIGHTSHOT PLUS
NightShot Vcc
XNS SW
IC5301 (1/2) CAMERA CONTROL (14/19)
IC 4001CS
PITCH AD
YAW AD
VST C RESET
ZOOM VR AD
SDC IN
XCS AU1
XRST VTR
SI-042 BOARD (1/3)
S601 (LENS COVER OPEN)
CN603 (1/3)
CN1004 (1/3)
XSHUTTER OPEN
D601 IR EMITTER/ NIGHTSHOT
NS LED K
Q1001 LED DRIVE
IR ON
SE601 PITCH SENSOR
SE602 YAW SENSOR
IC602 PITCH/YAW SENSOR AMP
1 OVERALL (5/6) (PAGE 3-9)
2 OVERALL (2/6) (PAGE 3-3)
3 OVERALL (6/6) (PAGE 3-11)
4 OVERALL (5/6) (PAGE 3-9)
5 OVERALL (3/6) (PAGE 3-5)
6 OVERALL (4/6) (PAGE 3-7)
7 OVERALL (4/6) (PAGE 3-7)

🟩 : VIDEO SIGNAL

05

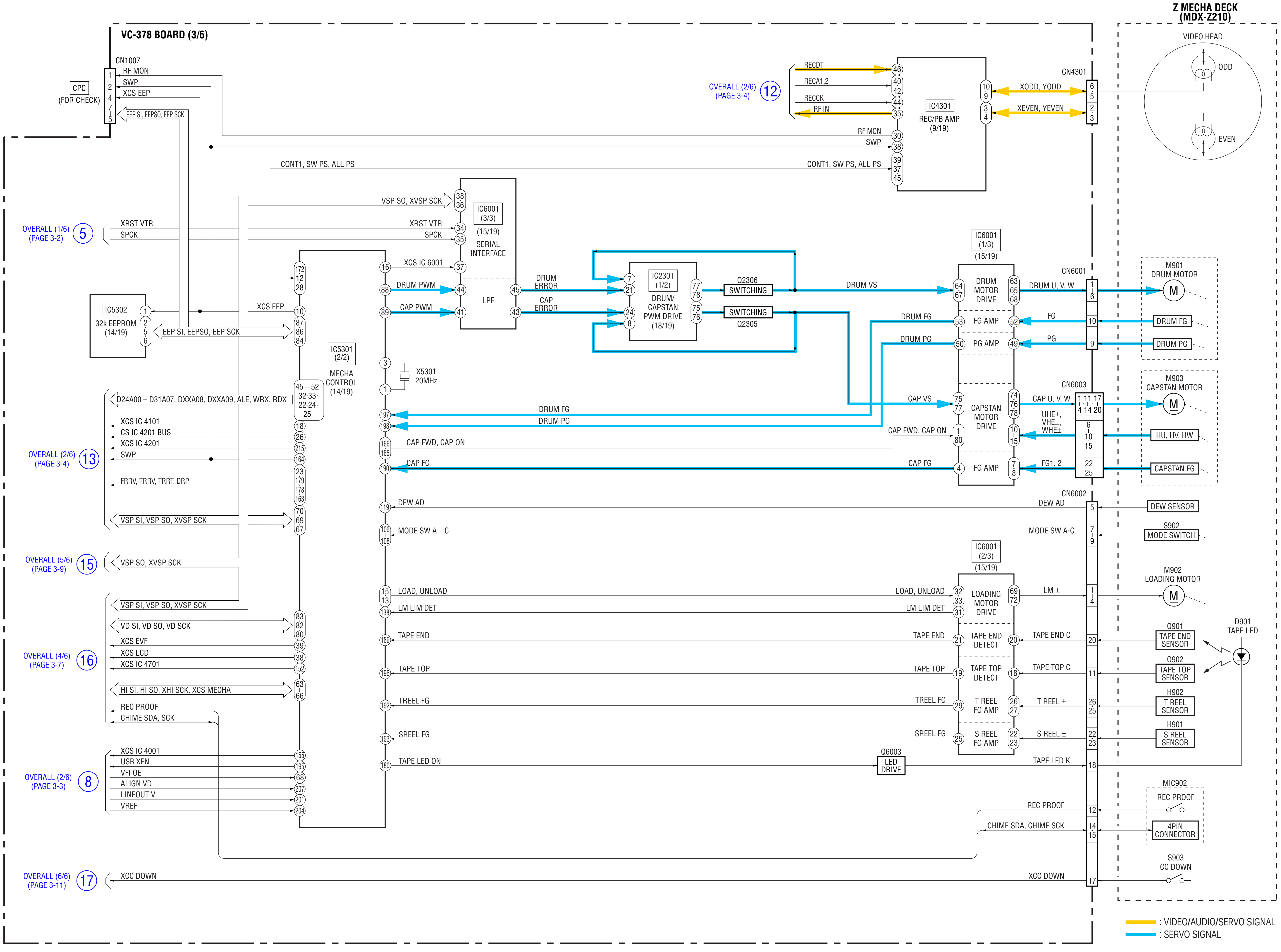
3-2. OVERALL BLOCK DIAGRAM (2/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-378 BOARD (2/6)
OVERALL (1/6) (PAGE 3-2) ②
VCK
LCKO
IC4001 (2/4) VIDEO/AUDIO DSP (4/19)
IC4201 DV SIGNAL PROCESS (7/19)
RY00 – RY03
RC00 – RC03
HY0, HC0
ADATAIN0,1
RYI0 – RYI3
RCI0 – RCI3
HYI, HCI
ADATAOUT0,1
RECDT
RECA1,2
RECCK
RF IN
OVERALL (3/6) (PAGE 3-6) ⑫
IC4101 DV INTERFACE (8/19)
LBUS0-3
TPA±, TPB±
D24A00 – D31A07, ALE, WRX, RDX
TRCKO
D24A00 – D31A07, DXXA08, DXXA09, ALE, WRX, RDX
XCS IC 4101
CS IC 4201 BUS
XCS IC 4201
SWP
VSP SI, VSP SO, XVSP SCK
FRRV, TRRV, TRRT, DRP
OVERALL (3/6) (PAGE 3-5) ⑬
DSCK VM
XSYS RST
SFD BCK
SFD LRCK
TRRT, FRRV, TRRV
OVERALL (5/6) (PAGE 3-10) ⑭
USB D±
Q4005 USB PULL UP
USB D+
USB 3.1V
USB DET
USB CLK
IC5102 (1/3) DS CONTROL (5/19)
D0 VM – D15 VM
MS DIO, MS BS, MS SCLK
MS XIN
Q5101 LED DRIVER
XMS LED ON
A1 VM – A19 VM
A1 VM – A21 VM
OVERALL (3/6) (PAGE 3-5) ⑧
XCS IC 4001
USB XEN
VFI OE
ALIGN VD
LINEOUT V
VREF
OVERALL (4/6) (PAGE 3-7) ⑨
OVERALL (5/6) (PAGE 3-9) ⑩
OVERALL (6/6) (PAGE 3-11) ⑪
A1–A11, A13, A14 VM
IC5202 32M FLASH (6/19)
IC5201 16M SDRAM (6/19)
XCS SDRAM VM
XCS FLASH
🟩 : VIDEO SIGNAL
▨ : AUDIO SIGNAL
🟧 : VIDEO/AUDIO SIGNAL
🟨 : VIDEO/AUDIO/SERVO SIGNAL
05

3-3. OVERALL BLOCK DIAGRAM (3/6)

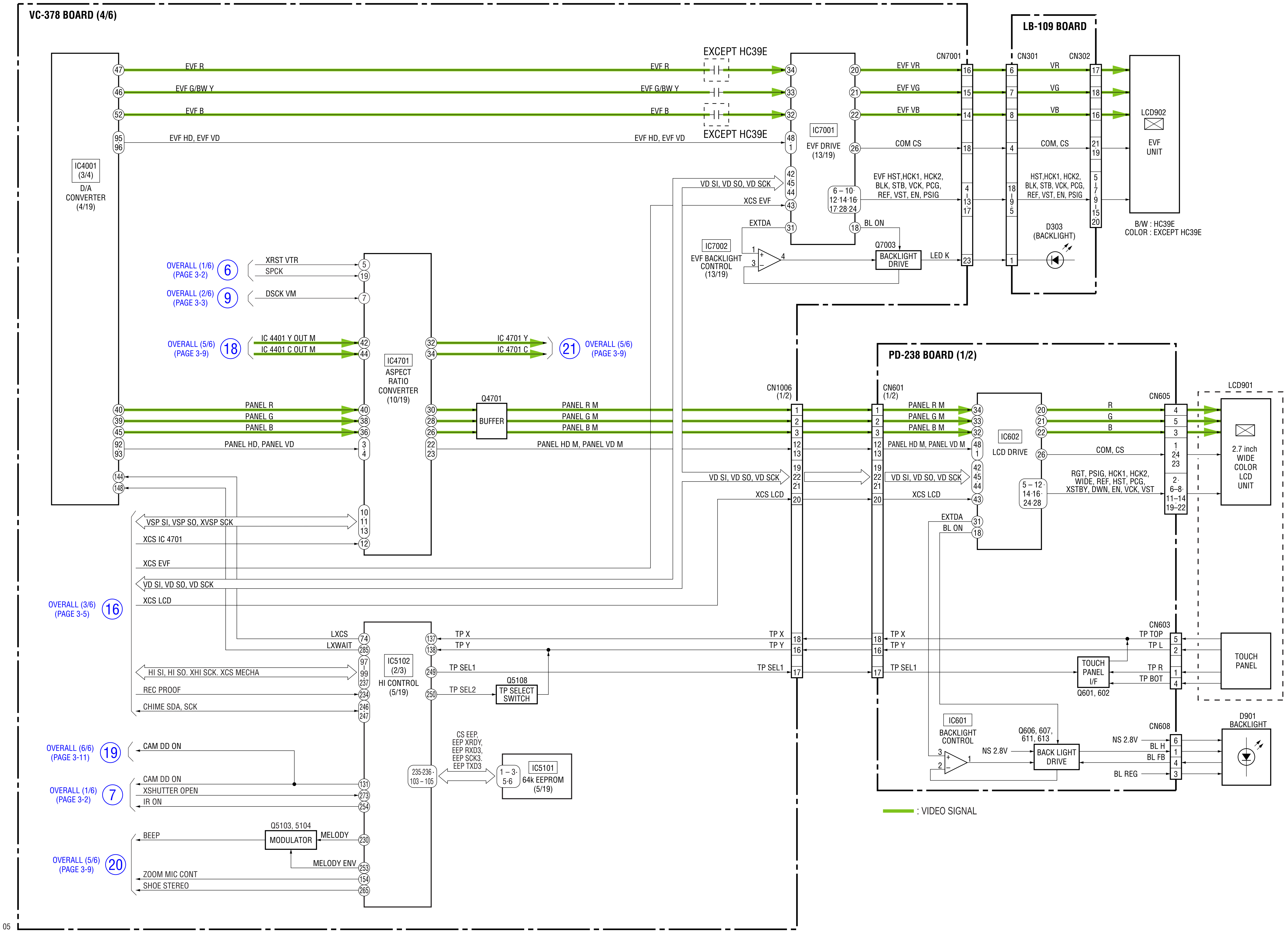
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



VC-378 BOARD (3/6)
Z MECHA DECK (MDX-Z210)
CN1007
RF MON
SWP
XCS EEP
EEP SI, EEPSO, EEP SCK
CPC (FOR CHECK)
OVERALL (2/6) (PAGE 3-4) 12
RECDT
RECA1,2
RECCK
RF IN
RF MON
SWP
CONT1, SW PS, ALL PS
IC4301 REC/PB AMP (9/19)
CN4301
XODD, YODD
XEVEN, YEVEN
VIDEO HEAD
ODD
EVEN
OVERALL (1/6) (PAGE 3-2) 5
XRST VTR
SPCK
VSP SO, XVSP SCK
IC6001 (3/3) (15/19) SERIAL INTERFACE
LPF
XCS IC 6001
DRUM PWM
CAP PWM
DRUM ERROR
CAP ERROR
IC2301 (1/2) DRUM/ CAPSTAN PWM DRIVE (18/19)
Q2306 SWITCHING
SWITCHING Q2305
DRUM VS
IC6001 (1/3) (15/19)
DRUM MOTOR DRIVE
FG AMP
PG AMP
CN6001
DRUM U, V, W
FG
PG
M901 DRUM MOTOR
DRUM FG
DRUM PG
IC5302 32k EEPROM (14/19)
XCS EEP
EEP SI, EEPSO, EEP SCK
IC5301 (2/2) MECHA CONTROL (14/19)
X5301 20MHz
D24A00 – D31A07, DXXA08, DXXA09, ALE, WRX, RDX
XCS IC 4101
CS IC 4201 BUS
XCS IC 4201
SWP
OVERALL (2/6) (PAGE 3-4) 13
FRRV, TRRV, TRRT, DRP
VSP SI, VSP SO, XVSP SCK
OVERALL (5/6) (PAGE 3-9) 15
VSP SO, XVSP SCK
VSP SI, VSP SO, XVSP SCK
OVERALL (4/6) (PAGE 3-7) 16
VD SI, VD SO, VD SCK
XCS EVF
XCS LCD
XCS IC 4701
HI SI, HI SO. XHI SCK. XCS MECHA
REC PROOF
CHIME SDA, SCK
OVERALL (2/6) (PAGE 3-3) 8
XCS IC 4001
USB XEN
VFI OE
ALIGN VD
LINEOUT V
VREF
OVERALL (6/6) (PAGE 3-11) 17
XCC DOWN
CAP VS
CAPSTAN MOTOR DRIVE
CN6003
CAP U, V, W
UHE±, VHE±, WHE±
FG1, 2
M903 CAPSTAN MOTOR
HU, HV, HW
CAPSTAN FG
CAP FWD, CAP ON
CAP FG
DEW AD
CN6002
DEW SENSOR
MODE SW A – C
MODE SW A-C
S902 MODE SWITCH
IC6001 (2/3) (15/19)
LOAD, UNLOAD
LM LIM DET
LOADING MOTOR DRIVE
LM ±
M902 LOADING MOTOR
TAPE END
TAPE END DETECT
TAPE END C
Q901 TAPE END SENSOR
D901 TAPE LED
TAPE TOP
TAPE TOP DETECT
TAPE TOP C
Q902 TAPE TOP SENSOR
TREEL FG
T REEL FG AMP
T REEL ±
H902 T REEL SENSOR
SREEL FG
S REEL FG AMP
S REEL ±
H901 S REEL SENSOR
TAPE LED ON
Q6003 LED DRIVE
TAPE LED K
REC PROOF
MIC902 REC PROOF
CHIME SDA, CHIME SCK
4PIN CONNECTOR
XCC DOWN
S903 CC DOWN
: VIDEO/AUDIO/SERVO SIGNAL
: SERVO SIGNAL
05

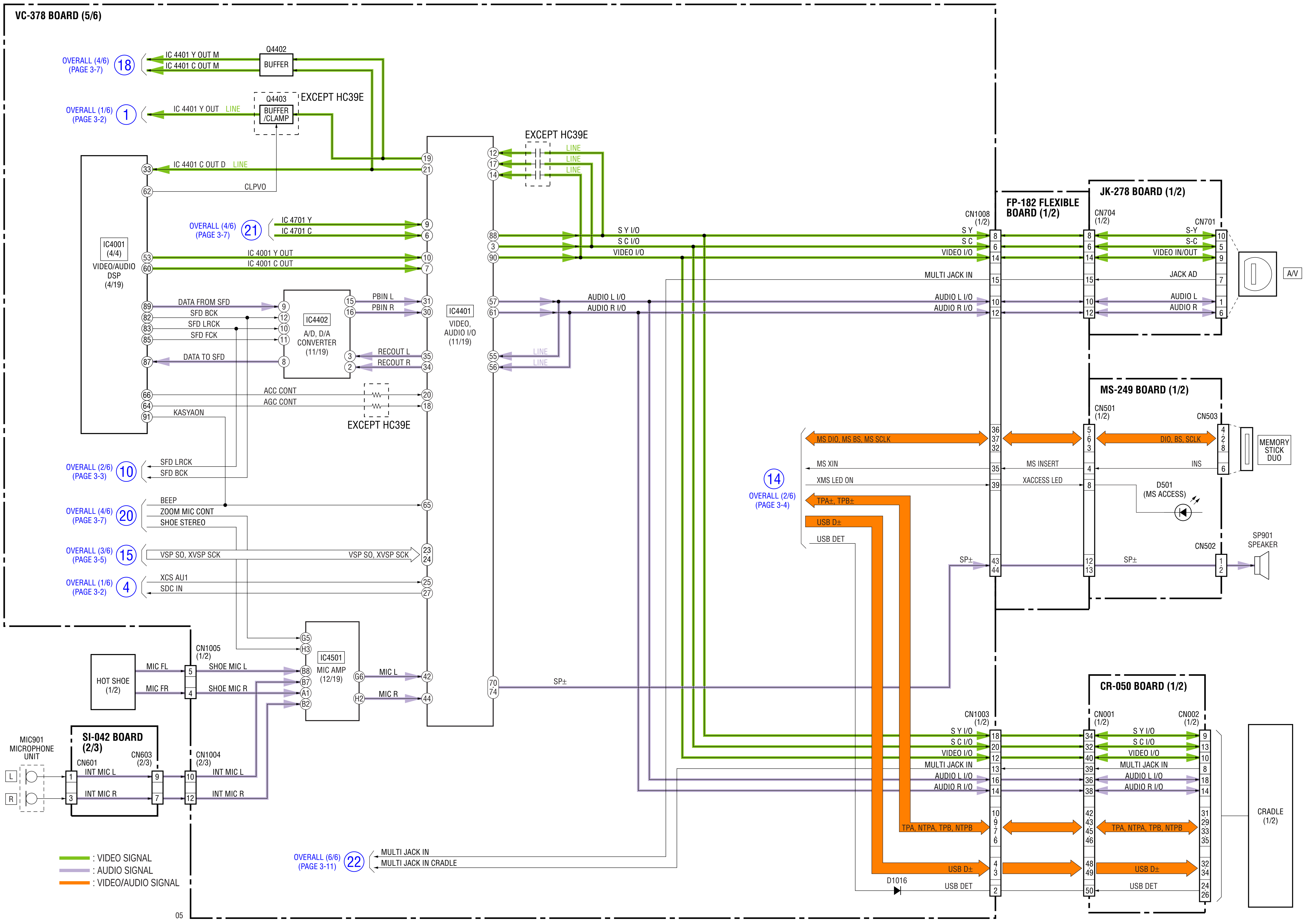
3-4. OVERALL BLOCK DIAGRAM (4/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-378 BOARD (4/6)
IC4001 (3/4)
D/A CONVERTER (4/19)
EVF R
EVF G/BW Y
EVF B
EVF HD, EVF VD
EXCEPT HC39E
IC7001
EVF DRIVE (13/19)
EVF VR
EVF VG
EVF VB
COM CS
EVF HST,HCK1, HCK2, BLK, STB, VCK, PCG, REF, VST, EN, PSIG
VD SI, VD SO, VD SCK
XCS EVF
EXTDA
BL ON
IC7002
EVF BACKLIGHT CONTROL (13/19)
Q7003
BACKLIGHT DRIVE
LED K
CN7001
LB-109 BOARD
CN301
CN302
VR
VG
VB
COM, CS
HST,HCK1, HCK2, BLK, STB, VCK, PCG, REF, VST, EN, PSIG
D303 (BACKLIGHT)
LCD902
EVF UNIT
B/W : HC39E
COLOR : EXCEPT HC39E
OVERALL (1/6) (PAGE 3-2) 6
XRST VTR
SPCK
OVERALL (2/6) (PAGE 3-3) 9
DSCK VM
OVERALL (5/6) (PAGE 3-9) 18
IC 4401 Y OUT M
IC 4401 C OUT M
IC4701
ASPECT RATIO CONVERTER (10/19)
IC 4701 Y
IC 4701 C
21 OVERALL (5/6) (PAGE 3-9)
PANEL R
PANEL G
PANEL B
PANEL HD, PANEL VD
Q4701
BUFFER
PANEL R M
PANEL G M
PANEL B M
PANEL HD M, PANEL VD M
VSP SI, VSP SO, XVSP SCK
XCS IC 4701
XCS EVF
VD SI, VD SO, VD SCK
XCS LCD
OVERALL (3/6) (PAGE 3-5) 16
CN1006 (1/2)
PD-238 BOARD (1/2)
CN601 (1/2)
IC602
LCD DRIVE
R
G
B
COM, CS
RGT, PSIG, HCK1, HCK2, WIDE, REF, HST, PCG, XSTBY, DWN, EN, VCK, VST
CN605
LCD901
2.7 inch WIDE COLOR LCD UNIT
LXCS
LXWAIT
IC5102 (2/3)
HI CONTROL (5/19)
TP X
TP Y
TP SEL1
TP SEL2
Q5108
TP SELECT SWITCH
HI SI, HI SO. XHI SCK. XCS MECHA
REC PROOF
CHIME SDA, SCK
CN603
TP TOP
TP L
TP R
TP BOT
TOUCH PANEL I/F
Q601, 602
TOUCH PANEL
OVERALL (6/6) (PAGE 3-11) 19
CAM DD ON
OVERALL (1/6) (PAGE 3-2) 7
XSHUTTER OPEN
IR ON
CS EEP, EEP XRDY, EEP RXD3, EEP SCK3, EEP TXD3
IC5101
64k EEPROM (5/19)
IC601
BACKLIGHT CONTROL
Q606, 607, 611, 613
BACK LIGHT DRIVE
NS 2.8V
BL H
BL FB
BL REG
CN608
D901 BACKLIGHT
Q5103, 5104
MODULATOR
BEEP
MELODY
MELODY ENV
OVERALL (5/6) (PAGE 3-9) 20
ZOOM MIC CONT
SHOE STEREO
: VIDEO SIGNAL
05

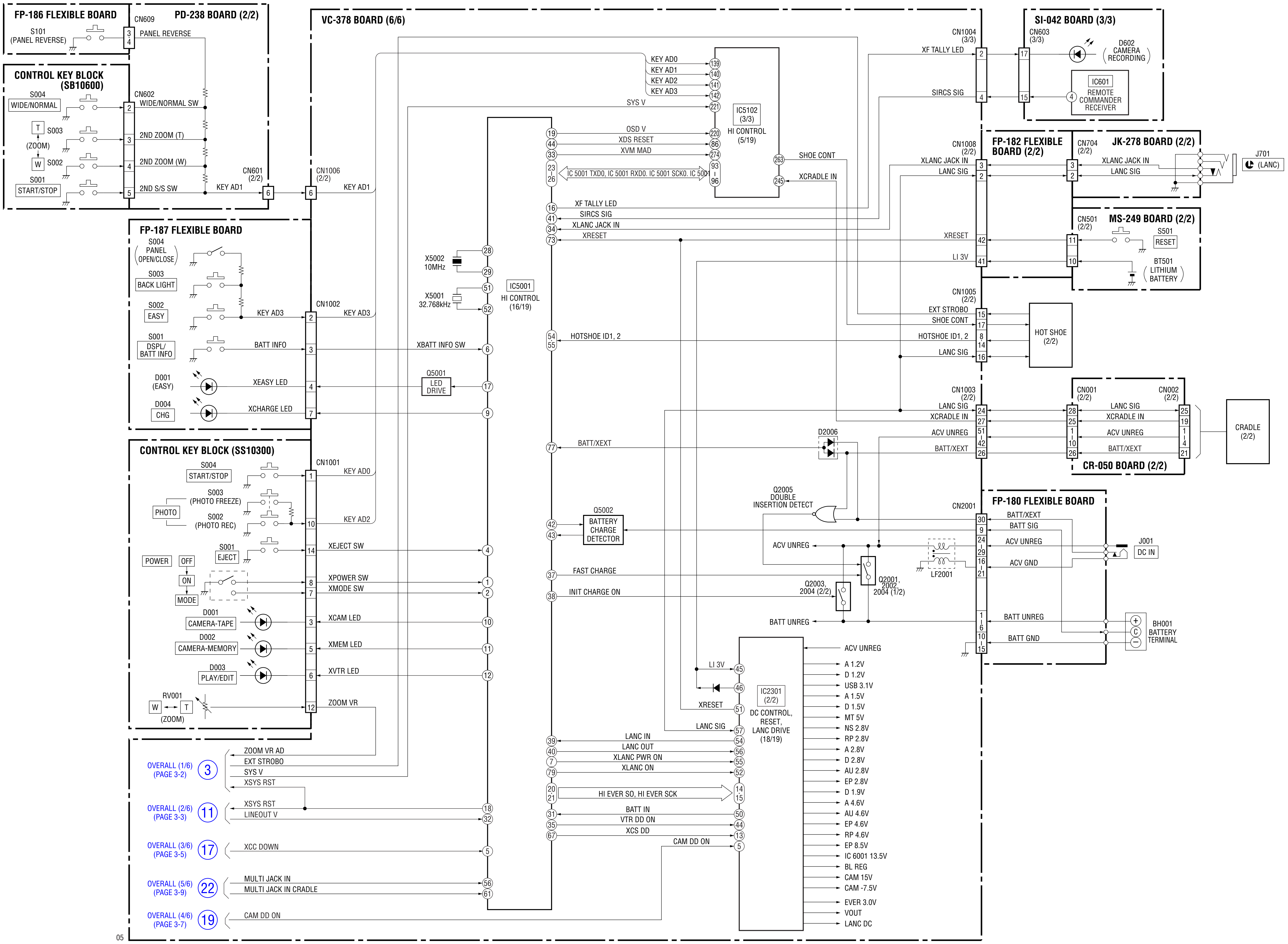
3-5. OVERALL BLOCK DIAGRAM (5/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-378 BOARD (5/6)
OVERALL (4/6) (PAGE 3-7) 18
IC 4401 Y OUT M
IC 4401 C OUT M
Q4402 BUFFER
OVERALL (1/6) (PAGE 3-2) 1
IC 4401 Y OUT LINE
Q4403 BUFFER /CLAMP
EXCEPT HC39E
IC 4401 C OUT D LINE
CLPVO
IC4001 (4/4) VIDEO/AUDIO DSP (4/19)
OVERALL (4/6) (PAGE 3-7) 21
IC 4701 Y
IC 4701 C
IC 4001 Y OUT
IC 4001 C OUT
DATA FROM SFD
SFD BCK
SFD LRCK
SFD FCK
DATA TO SFD
IC4402 A/D, D/A CONVERTER (11/19)
PBIN L
PBIN R
RECOUT L
RECOUT R
ACC CONT
AGC CONT
KASYAON
EXCEPT HC39E
IC4401 VIDEO, AUDIO I/O (11/19)
LINE
LINE
LINE
S Y I/O
S C I/O
VIDEO I/O
AUDIO L I/O
AUDIO R I/O
OVERALL (2/6) (PAGE 3-3) 10
SFD LRCK
SFD BCK
OVERALL (4/6) (PAGE 3-7) 20
BEEP
ZOOM MIC CONT
SHOE STEREO
OVERALL (3/6) (PAGE 3-5) 15
VSP SO, XVSP SCK
OVERALL (1/6) (PAGE 3-2) 4
XCS AU1
SDC IN
HOT SHOE (1/2)
MIC FL
MIC FR
CN1005 (1/2)
SHOE MIC L
SHOE MIC R
IC4501 MIC AMP (12/19)
MIC L
MIC R
SP±
MIC901 MICROPHONE UNIT
L
R
SI-042 BOARD (2/3)
CN601
CN603 (2/3)
INT MIC L
INT MIC R
CN1004 (2/3)
OVERALL (6/6) (PAGE 3-11) 22
MULTI JACK IN
MULTI JACK IN CRADLE
: VIDEO SIGNAL
: AUDIO SIGNAL
: VIDEO/AUDIO SIGNAL
05
CN1008 (1/2)
S Y
S C
VIDEO I/O
MULTI JACK IN
AUDIO L I/O
AUDIO R I/O
FP-182 FLEXIBLE BOARD (1/2)
JK-278 BOARD (1/2)
CN704 (1/2)
CN701
S-Y
S-C
VIDEO IN/OUT
JACK AD
AUDIO L
AUDIO R
A/V
MS-249 BOARD (1/2)
CN501 (1/2)
CN503
MS DIO, MS BS, MS SCLK
DIO, BS, SCLK
MEMORY STICK DUO
MS XIN
MS INSERT
INS
XMS LED ON
XACCESS LED
D501 (MS ACCESS)
OVERALL (2/6) (PAGE 3-4) 14
TPA±, TPB±
USB D±
USB DET
CN502
SP901 SPEAKER
SP±
CR-050 BOARD (1/2)
CN1003 (1/2)
CN001 (1/2)
CN002 (1/2)
S Y I/O
S C I/O
VIDEO I/O
MULTI JACK IN
AUDIO L I/O
AUDIO R I/O
TPA, NTPA, TPB, NTPB
USB D±
D1016
USB DET
CRADLE (1/2)

3-6. OVERALL BLOCK DIAGRAM (6/6)

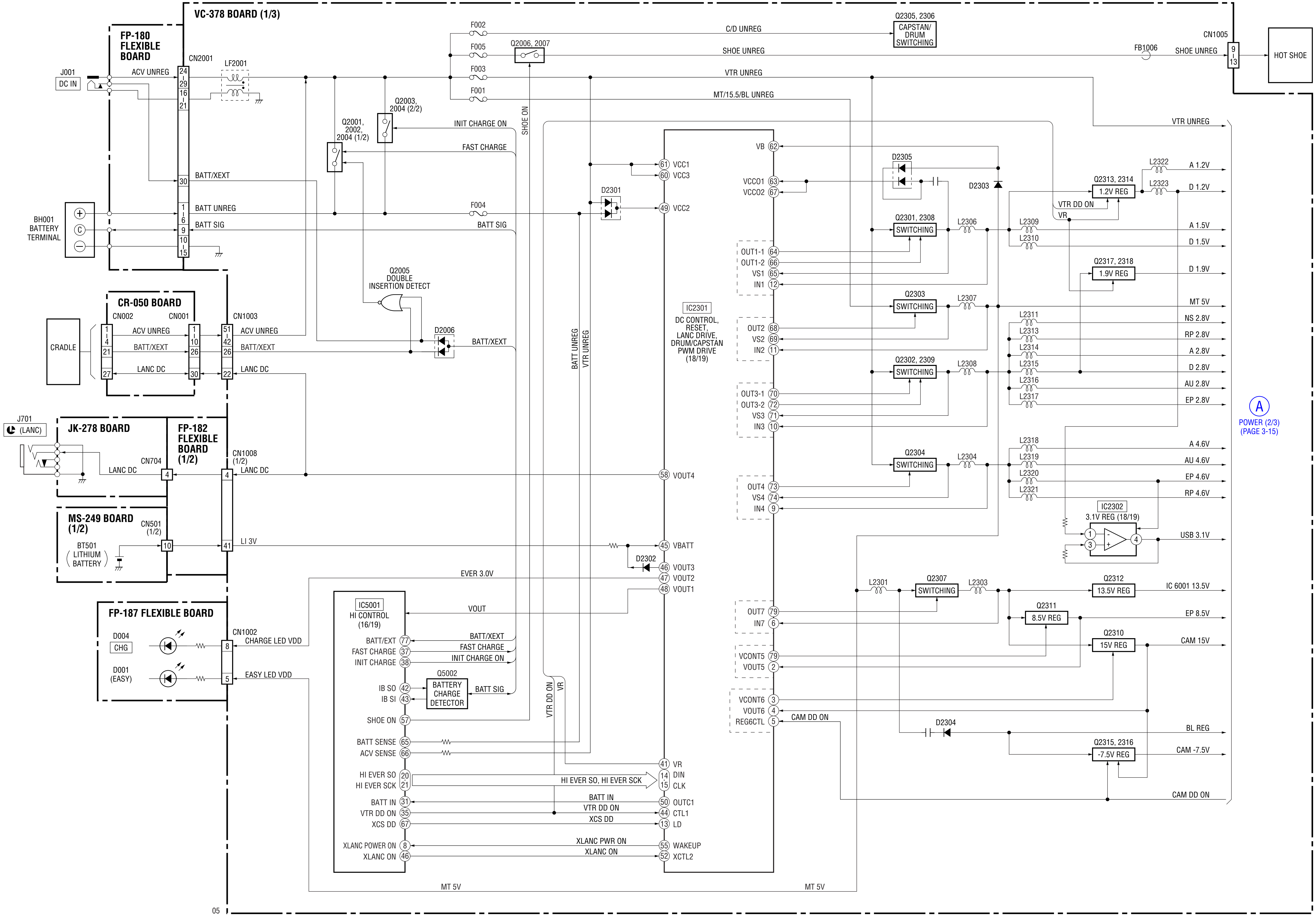
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



FP-186 FLEXIBLE BOARD
S101 (PANEL REVERSE)
PD-238 BOARD (2/2)
CN609
PANEL REVERSE
CONTROL KEY BLOCK (SB10600)
S004 WIDE/NORMAL
S003 (ZOOM) T W
S002
S001 START/STOP
CN602
WIDE/NORMAL SW
2ND ZOOM (T)
2ND ZOOM (W)
2ND S/S SW
KEY AD1
CN601 (2/2)
CN1006 (2/2)
VC-378 BOARD (6/6)
KEY AD0
KEY AD1
KEY AD2
KEY AD3
SYS V
IC5102 (3/3) HI CONTROL (5/19)
OSD V
XDS RESET
XVM MAD
IC 5001 TXD0, IC 5001 RXD0, IC 5001 SCK0, IC 5001
SHOE CONT
XCRADLE IN
XF TALLY LED
SIRCS SIG
XLANC JACK IN
XRESET
LI 3V
CN1004 (3/3)
SI-042 BOARD (3/3)
CN603 (3/3)
D602 CAMERA RECORDING
IC601 REMOTE COMMANDER RECEIVER
CN1008 (2/2)
FP-182 FLEXIBLE BOARD (2/2)
CN704 (2/2)
JK-278 BOARD (2/2)
XLANC JACK IN
LANC SIG
J701 (LANC)
CN501 (2/2)
MS-249 BOARD (2/2)
S501 RESET
BT501 LITHIUM BATTERY
FP-187 FLEXIBLE BOARD
S004 PANEL OPEN/CLOSE
S003 BACK LIGHT
S002 EASY
S001 DSPL/ BATT INFO
D001 (EASY)
D004 CHG
KEY AD3
BATT INFO
XEASY LED
XCHARGE LED
CN1002
X5002 10MHz
X5001 32.768kHz
IC5001 HI CONTROL (16/19)
XBATT INFO SW
Q5001 LED DRIVE
HOTSHOE ID1, 2
CN1005 (2/2)
EXT STROBO
SHOE CONT
HOTSHOE ID1, 2
LANC SIG
HOT SHOE (2/2)
CN1003 (2/2)
LANC SIG
XCRADLE IN
ACV UNREG
BATT/XEXT
D2006
CN001 (2/2)
CN002 (2/2)
CR-050 BOARD (2/2)
CRADLE (2/2)
BATT/XEXT
CONTROL KEY BLOCK (SS10300)
S004 START/STOP
S003 (PHOTO FREEZE)
PHOTO
S002 (PHOTO REC)
POWER OFF ON MODE
S001 EJECT
D001 CAMERA-TAPE
D002 CAMERA-MEMORY
D003 PLAY/EDIT
RV001 W T (ZOOM)
CN1001
KEY AD0
KEY AD2
XEJECT SW
XPOWER SW
XMODE SW
XCAM LED
XMEM LED
XVTR LED
ZOOM VR
Q5002 BATTERY CHARGE DETECTOR
FAST CHARGE
INIT CHARGE ON
Q2005 DOUBLE INSERTION DETECT
ACV UNREG
Q2003, 2004 (2/2)
Q2001, 2002, 2004 (1/2)
LF2001
BATT UNREG
CN2001
FP-180 FLEXIBLE BOARD
BATT/XEXT
BATT SIG
ACV UNREG
ACV GND
J001 DC IN
BATT UNREG
BATT GND
BH001 BATTERY TERMINAL
IC2301 (2/2) DC CONTROL, RESET, LANC DRIVE (18/19)
LI 3V
XRESET
LANC SIG
LANC IN
LANC OUT
XLANC PWR ON
XLANC ON
HI EVER SO, HI EVER SCK
BATT IN
VTR DD ON
XCS DD
CAM DD ON
ACV UNREG
A 1.2V
D 1.2V
USB 3.1V
A 1.5V
D 1.5V
MT 5V
NS 2.8V
RP 2.8V
A 2.8V
D 2.8V
AU 2.8V
EP 2.8V
D 1.9V
A 4.6V
AU 4.6V
EP 4.6V
RP 4.6V
EP 8.5V
IC 6001 13.5V
BL REG
CAM 15V
CAM -7.5V
EVER 3.0V
VOUT
LANC DC
OVERALL (1/6) (PAGE 3-2) 3
ZOOM VR AD
EXT STROBO
SYS V
XSYS RST
OVERALL (2/6) (PAGE 3-3) 11
XSYS RST
LINEOUT V
OVERALL (3/6) (PAGE 3-5) 17
XCC DOWN
OVERALL (5/6) (PAGE 3-9) 22
MULTI JACK IN
MULTI JACK IN CRADLE
OVERALL (4/6) (PAGE 3-7) 19
CAM DD ON
05

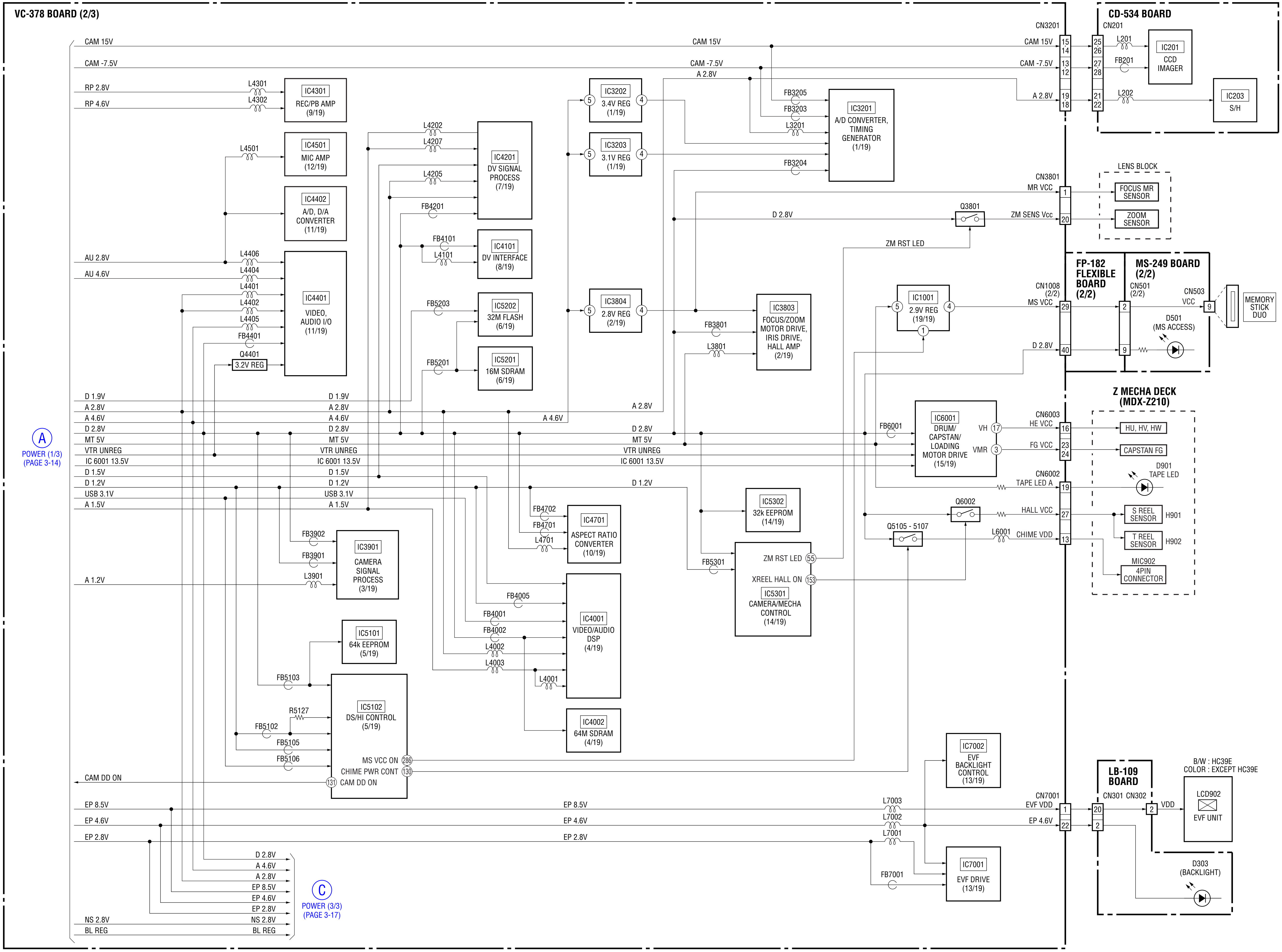
3-7. POWER BLOCK DIAGRAM (1/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-378 BOARD (1/3)
FP-180 FLEXIBLE BOARD
J001
DC IN
ACV UNREG
CN2001
LF2001
BH001 BATTERY TERMINAL
BATT/XEXT
BATT UNREG
BATT SIG
F002
F005
F003
F001
F004
C/D UNREG
SHOE UNREG
VTR UNREG
MT/15.5/BL UNREG
Q2006, 2007
Q2001, 2002, 2004 (1/2)
Q2003, 2004 (2/2)
INIT CHARGE ON
FAST CHARGE
SHOE ON
Q2305, 2306
CAPSTAN/ DRUM SWITCHING
CN1005
FB1006
HOT SHOE
Q2005 DOUBLE INSERTION DETECT
D2006
CR-050 BOARD
CN002
CN001
CN1003
CRADLE
LANC DC
J701
(LANC)
JK-278 BOARD
CN704
FP-182 FLEXIBLE BOARD (1/2)
CN1008 (1/2)
MS-249 BOARD (1/2)
CN501 (1/2)
BT501 LITHIUM BATTERY
LI 3V
FP-187 FLEXIBLE BOARD
D004
CHG
D001 (EASY)
CN1002
CHARGE LED VDD
EASY LED VDD
EVER 3.0V
IC5001 HI CONTROL (16/19)
VOUT
BATT/EXT
FAST CHARGE
INIT CHARGE
IB SO
IB SI
Q5002 BATTERY CHARGE DETECTOR
SHOE ON
BATT SENSE
ACV SENSE
HI EVER SO
HI EVER SCK
HI EVER SO, HI EVER SCK
BATT IN
VTR DD ON
XCS DD
XLANC POWER ON
XLANC ON
XLANC PWR ON
MT 5V
BATT UNREG
VTR UNREG
VTR DD ON
VR
D2301
D2302
IC2301 DC CONTROL, RESET, LANC DRIVE, DRUM/CAPSTAN PWM DRIVE (18/19)
VCC1
VCC3
VCC2
VB
VCCO1
VCCO2
OUT1-1
OUT1-2
VS1
IN1
OUT2
VS2
IN2
OUT3-1
OUT3-2
VS3
IN3
VOUT4
OUT4
VS4
IN4
VBATT
VOUT3
VOUT2
VOUT1
OUT7
IN7
VCONT5
VOUT5
VCONT6
VOUT6
REG6CTL
CAM DD ON
DIN
CLK
OUTC1
CTL1
LD
WAKEUP
XCTL2
D2305
D2303
D2304
Q2301, 2308 SWITCHING
Q2303 SWITCHING
Q2302, 2309 SWITCHING
Q2304 SWITCHING
Q2307 SWITCHING
L2301
L2303
L2304
L2306
L2307
L2308
L2309
L2310
L2311
L2313
L2314
L2315
L2316
L2317
L2318
L2319
L2320
L2321
L2322
L2323
Q2313, 2314 1.2V REG
Q2317, 2318 1.9V REG
IC2302 3.1V REG (18/19)
Q2312 13.5V REG
Q2311 8.5V REG
Q2310 15V REG
Q2315, 2316 -7.5V REG
A 1.2V
D 1.2V
A 1.5V
D 1.5V
D 1.9V
MT 5V
NS 2.8V
RP 2.8V
A 2.8V
D 2.8V
AU 2.8V
EP 2.8V
A 4.6V
AU 4.6V
EP 4.6V
RP 4.6V
USB 3.1V
IC 6001 13.5V
EP 8.5V
CAM 15V
BL REG
CAM -7.5V
CAM DD ON
A
POWER (2/3) (PAGE 3-15)
05

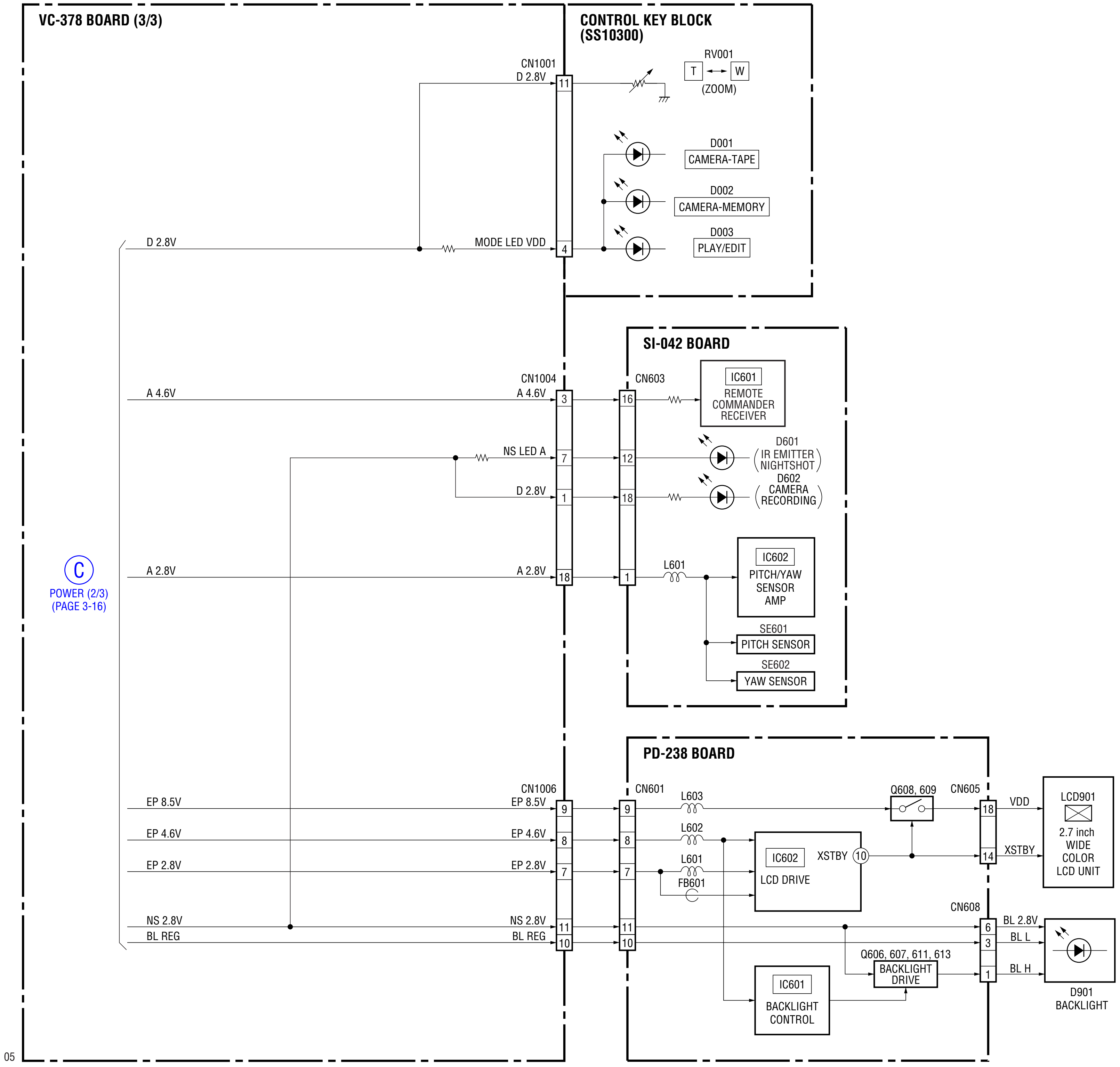
3-8. POWER BLOCK DIAGRAM (2/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-378 BOARD (2/3)
CAM 15V
CAM -7.5V
RP 2.8V
RP 4.6V
L4301
L4302
IC4301
REC/PB AMP
(9/19)
IC4501
MIC AMP
(12/19)
L4501
IC4402
A/D, D/A
CONVERTER
(11/19)
L4202
L4207
L4205
FB4201
IC4201
DV SIGNAL
PROCESS
(7/19)
FB4101
L4101
IC4101
DV INTERFACE
(8/19)
AU 2.8V
AU 4.6V
L4406
L4404
L4401
L4402
L4405
FB4401
Q4401
3.2V REG
IC4401
VIDEO,
AUDIO I/O
(11/19)
FB5203
IC5202
32M FLASH
(6/19)
FB5201
IC5201
16M SDRAM
(6/19)
IC3202
3.4V REG
(1/19)
IC3203
3.1V REG
(1/19)
IC3804
2.8V REG
(2/19)
CAM 15V
CAM -7.5V
A 2.8V
FB3205
FB3203
L3201
FB3204
IC3201
A/D CONVERTER,
TIMING
GENERATOR
(1/19)
FB3801
L3801
IC3803
FOCUS/ZOOM
MOTOR DRIVE,
IRIS DRIVE,
HALL AMP
(2/19)
D 2.8V
Q3801
ZM RST LED
IC1001
2.9V REG
(19/19)
CN3201
CAM 15V
CAM -7.5V
A 2.8V
CN3801
MR VCC
ZM SENS Vcc
CN1008
(2/2)
MS VCC
D 2.8V
CD-534 BOARD
CN201
L201
FB201
L202
IC201
CCD
IMAGER
IC203
S/H
LENS BLOCK
FOCUS MR
SENSOR
ZOOM
SENSOR
FP-182
FLEXIBLE
BOARD
(2/2)
MS-249 BOARD
(2/2)
CN501
(2/2)
CN503
VCC
D501
(MS ACCESS)
MEMORY
STICK
DUO
D 1.9V
A 2.8V
A 4.6V
D 2.8V
MT 5V
VTR UNREG
IC 6001 13.5V
D 1.5V
D 1.2V
USB 3.1V
A 1.5V
A
POWER (1/3)
(PAGE 3-14)
A 2.8V
A 4.6V
D 2.8V
MT 5V
VTR UNREG
IC 6001 13.5V
D 1.2V
FB6001
IC6001
DRUM/
CAPSTAN/
LOADING
MOTOR DRIVE
(15/19)
VH
VMR
CN6003
HE VCC
FG VCC
CN6002
TAPE LED A
HALL VCC
CHIME VDD
Q6002
Q5105 - 5107
L6001
Z MECHA DECK
(MDX-Z210)
HU, HV, HW
CAPSTAN FG
D901
TAPE LED
S REEL
SENSOR
H901
T REEL
SENSOR
H902
MIC902
4PIN
CONNECTOR
FB4702
FB4701
L4701
IC4701
ASPECT RATIO
CONVERTER
(10/19)
IC5302
32k EEPROM
(14/19)
FB5301
ZM RST LED
XREEL HALL ON
IC5301
CAMERA/MECHA
CONTROL
(14/19)
FB3902
FB3901
L3901
A 1.2V
IC3901
CAMERA
SIGNAL
PROCESS
(3/19)
FB4005
FB4001
FB4002
L4002
L4003
L4001
IC4001
VIDEO/AUDIO
DSP
(4/19)
IC4002
64M SDRAM
(4/19)
IC5101
64k EEPROM
(5/19)
FB5103
R5127
FB5102
FB5105
FB5106
IC5102
DS/HI CONTROL
(5/19)
MS VCC ON
CHIME PWR CONT
CAM DD ON
CAM DD ON
EP 8.5V
EP 4.6V
EP 2.8V
L7003
L7002
L7001
FB7001
IC7002
EVF
BACKLIGHT
CONTROL
(13/19)
IC7001
EVF DRIVE
(13/19)
CN7001
EVF VDD
EP 4.6V
LB-109
BOARD
CN301 CN302
VDD
B/W : HC39E
COLOR : EXCEPT HC39E
LCD902
EVF UNIT
D303
(BACKLIGHT)
D 2.8V
A 4.6V
A 2.8V
EP 8.5V
EP 4.6V
EP 2.8V
NS 2.8V
BL REG
C
POWER (3/3)
(PAGE 3-17)
05

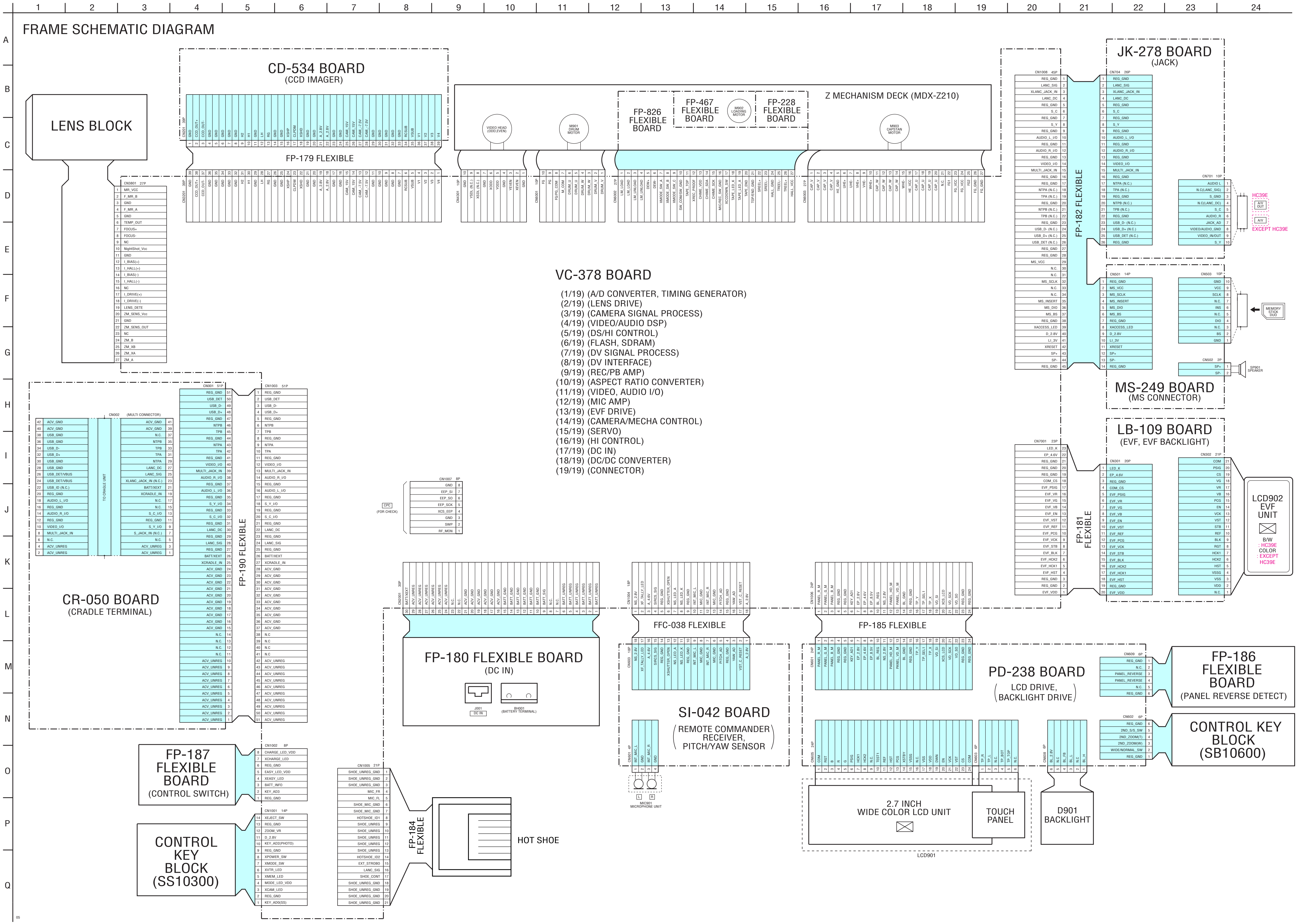
3-9. POWER BLOCK DIAGRAM (3/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-378 BOARD (3/3)
CN1001
D 2.8V
11
MODE LED VDD
4
D 2.8V
CONTROL KEY BLOCK
(SS10300)
RV001
T
W
(ZOOM)
D001
CAMERA-TAPE
D002
CAMERA-MEMORY
D003
PLAY/EDIT
SI-042 BOARD
CN1004
A 4.6V
3
CN603
16
IC601
REMOTE COMMANDER RECEIVER
A 4.6V
NS LED A
7
12
D601
IR EMITTER NIGHTSHOT
D 2.8V
1
18
D602
CAMERA RECORDING
A 2.8V
A 2.8V
18
1
L601
IC602
PITCH/YAW SENSOR AMP
SE601
PITCH SENSOR
SE602
YAW SENSOR
C
POWER (2/3)
(PAGE 3-16)
PD-238 BOARD
CN1006
EP 8.5V
EP 8.5V
9
CN601
9
L603
Q608, 609
CN605
18
VDD
LCD901
2.7 inch WIDE COLOR LCD UNIT
EP 4.6V
EP 4.6V
8
8
L602
IC602
LCD DRIVE
XSTBY
10
14
XSTBY
EP 2.8V
EP 2.8V
7
7
L601
FB601
CN608
NS 2.8V
NS 2.8V
11
11
6
BL 2.8V
BL REG
BL REG
10
10
3
BL L
Q606, 607, 611, 613
BACKLIGHT DRIVE
1
BL H
D901
BACKLIGHT
IC601
BACKLIGHT CONTROL
05

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


FRAME SCHEMATIC DIAGRAM
LENS BLOCK
CD-534 BOARD
(CCD IMAGER)
FP-179 FLEXIBLE
FP-826 FLEXIBLE BOARD
FP-467 FLEXIBLE BOARD
M902 LOADING MOTOR
FP-228 FLEXIBLE BOARD
Z MECHANISM DECK (MDX-Z210)
VIDEO HEAD (ODD,EVEN)
M901 DRUM MOTOR
M903 CAPSTAN MOTOR
JK-278 BOARD
(JACK)
FP-182 FLEXIBLE
HC39E
EXCEPT HC39E
VC-378 BOARD
(1/19) (A/D CONVERTER, TIMING GENERATOR)
(2/19) (LENS DRIVE)
(3/19) (CAMERA SIGNAL PROCESS)
(4/19) (VIDEO/AUDIO DSP)
(5/19) (DS/HI CONTROL)
(6/19) (FLASH, SDRAM)
(7/19) (DV SIGNAL PROCESS)
(8/19) (DV INTERFACE)
(9/19) (REC/PB AMP)
(10/19) (ASPECT RATIO CONVERTER)
(11/19) (VIDEO, AUDIO I/O)
(12/19) (MIC AMP)
(13/19) (EVF DRIVE)
(14/19) (CAMERA/MECHA CONTROL)
(15/19) (SERVO)
(16/19) (HI CONTROL)
(17/19) (DC IN)
(18/19) (DC/DC CONVERTER)
(19/19) (CONNECTOR)
MEMORY STICK
SP901 SPEAKER
MS-249 BOARD
(MS CONNECTOR)
LB-109 BOARD
(EVF, EVF BACKLIGHT)
FP-181 FLEXIBLE
LCD902 EVF UNIT
B/W : HC39E
COLOR : EXCEPT HC39E
CN1007 8P
(FOR CHECK)
TO CRADLE UNIT
CR-050 BOARD
(CRADLE TERMINAL)
FP-190 FLEXIBLE
FP-180 FLEXIBLE BOARD
(DC IN)
J001 DC IN
BH001 (BATTERY TERMINAL)
FFC-038 FLEXIBLE
SI-042 BOARD
(REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR)
MIC901 MICROPHONE UNIT
FP-185 FLEXIBLE
PD-238 BOARD
(LCD DRIVE, BACKLIGHT DRIVE)
FP-186 FLEXIBLE BOARD
(PANEL REVERSE DETECT)
CONTROL KEY BLOCK (SB10600)
FP-187 FLEXIBLE BOARD
(CONTROL SWITCH)
CONTROL KEY BLOCK (SS10300)
FP-184 FLEXIBLE
HOT SHOE
2.7 INCH WIDE COLOR LCD UNIT
TOUCH PANEL
D901 BACKLIGHT
LCD901

4-2. SCHEMATIC DIAGRAMS

Link

CD-534 BOARD (CCD IMAGER)	LB-109 BOARD (EVF, EVF BACKLIGHT)
PD-238 BOARD (LCD DRIVE, BACKLIGHT DRIVE)	FP-186 FLEXIBLE BOARD (PANEL REVERSE DETECT)
CR-050 BOARD (CRADLE TERMINAL)	FP-180 FLEXIBLE BOARD (DC IN)
SI-042 BOARD (REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR)	FP-187 FLEXIBLE BOARD (CONTROL SWITCH)
FP-182 FLEXIBLE BOARD	FP-826, FP-467, FP-228 FLEXIBLE BOARD
JK-278 BOARD (JACK)	CONTROL KEY BLOCK (SS10300)
MS-249 BOARD (MS CONNECTOR)	CONTROL KEY BLOCK (SB10600)

COMMON NOTE FOR SCHEMATIC DIAGRAMS	WAVEFORMS

4-2. SCHEMATIC DIAGRAMS (ENGLISH)

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μ μF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520

Kinds of capacitor (TA) — Case size (A) — External dimensions (mm) (2520)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- —▭—: non flammable resistor
- —▭•—: fusible resistor
- ▭: panel designation
- ━━: B+ Line
- ━ ━ ━: B– Line
- ⇨ : IN/OUT direction of (+,–) B LINE.
- ▭: adjustment for repair.
- ━━: not use circuit
- Circled numbers refer to waveforms.

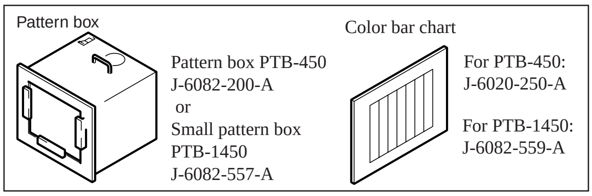
(Measuring conditions voltage and waveform)

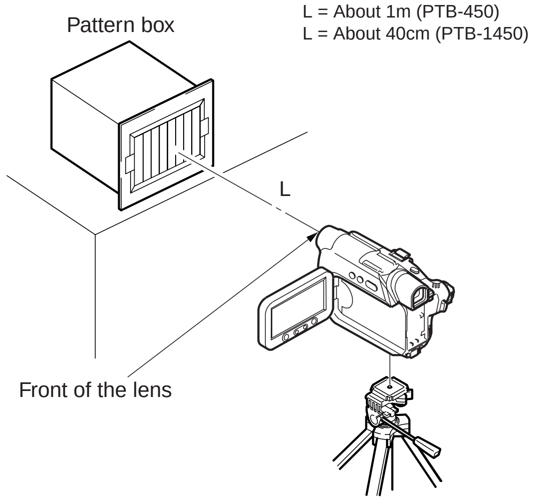
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

Precautions for Replacement of CCD Imager

- The CD-534 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

1. Connection


Pattern box
Pattern box PTB-450
J-6082-200-A
or
Small pattern box
PTB-1450
J-6082-557-A
Color bar chart
For PTB-450:
J-6020-250-A
For PTB-1450:
J-6082-559-A


Pattern box
L = About 1m (PTB-450)
L = About 40cm (PTB-1450)
L
Front of the lens

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

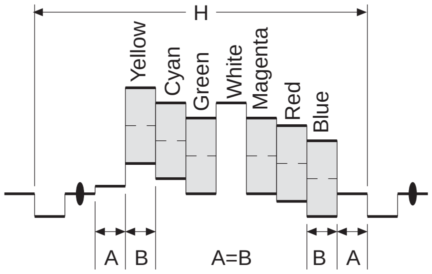

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A

Fig. a (Video output terminal output waveform)

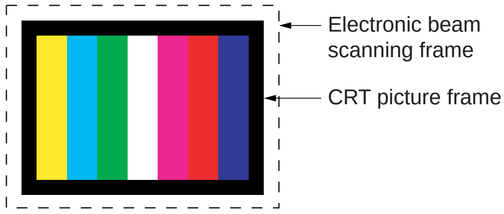

Electronic beam scanning frame
CRT picture frame

Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

(JAPANESE)

回路図共通ノート

（他に必要なノートは各ブロックに記載してあります）

【回路図ノート】

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものはその耐圧を省略。単位はすべてμF（pはpF）。
- チップ抵抗で指示のないものは，1／10W以下。
  kΩ＝1000Ω，MΩ＝1000kΩ
- チップ部品交換時の注意
  取り外した部品は再使用せず，未使用の部品をご使用ください。
  タンタルコンデンサのマイナス側は熱に弱いため注意してください。
- チップ部品には下記のように表示したものがあります。

例	C 541		L 452
	22U		10UH
	$\underline{\text{TA}}$	$\underline{\text{A}}$	$\underline{\text{2520}}$
	↑	↑	↑
	種類	ケースサイズ	外形寸法（mm）

- 抵抗，コンデンサ，ICなど定数にXXがあるものは，使用していない事を示しています。このため，使用していない回路が記載されている事があります。
- ★印のある部品は，機種などにより異なりますので機能別マウント一覧表を参照してください。
- 可変抵抗と半固定抵抗で，B特性の表示を省略。
- 信号名表記について，下記のような場合があります。
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- ─▭─は不燃性抵抗。
- ─∿─は ヒューズ抵抗。
- ▭はパネル表示名称。
- ━━はB＋ライン。
- ▬ ▬ ▬はB－ライン。
- ⇨はBライン（＋，－）の入出力方向を示す。
- ▭は調整名称。
- ━━は未使用回路。
- ○番号は，波形図の照合番号。

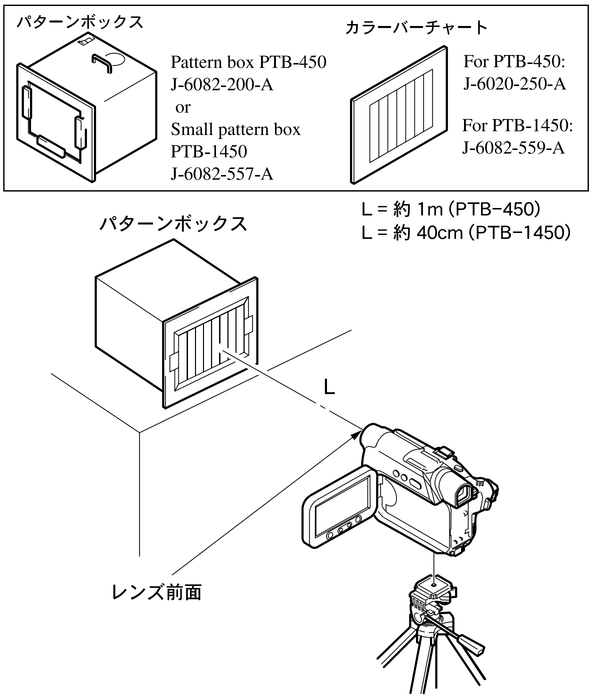
【電圧・波形測定条件ノート】

- 電圧値及び信号波形はパターンボックスのカラーバーチャートを被写体としたときの測定点対アース間の参考値。
  （デジタルマルチメータ；入力インピーダンス DC10MΩ使用）
- 使用テスタの入力インピーダンスにより電圧値が多少異なります。

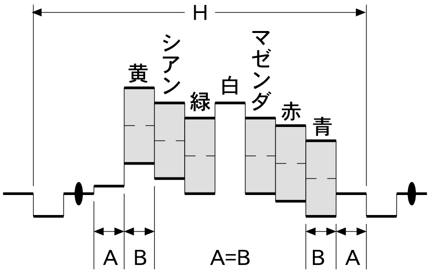
CCD イメージャ交換時の注意

- 補修部品として供給されるCD-534基板には，CCDイメージャがマウントされていません。CD-534基板を交換するときは，旧基板よりCCDイメージャを外し，新基板へ再度取り付けて下さい。
- CCDイメージャを交換した場合は，カメラ部の全調整を行ってください。
- CCDイメージャは構造上，静電気により破壊される恐れがあるため，MOS ICと同様に注意して取り扱ってください。
  また，受光部にはゴミの付着，および強い光がはいることのないように注意してください。

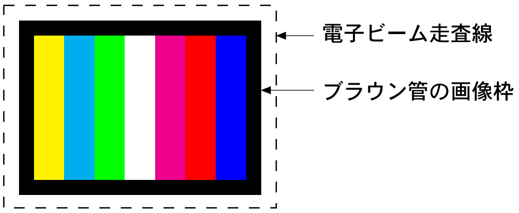
1. 接続図


パターンボックス
Pattern box PTB-450
J-6082-200-A
or
Small pattern box
PTB-1450
J-6082-557-A
カラーバーチャート
For PTB-450:
J-6020-250-A
For PTB-1450:
J-6082-559-A
L = 約 1m (PTB−450)
L = 約 40cm (PTB−1450)
パターンボックス
L
レンズ前面

2. 図a及び図bの波形が得られるように画枠調整して下さい。


H
黄
シアン
緑
白
マゼンダ
赤
青
A
B
A=B
B
A

図a（映像入出力端子出力波形）

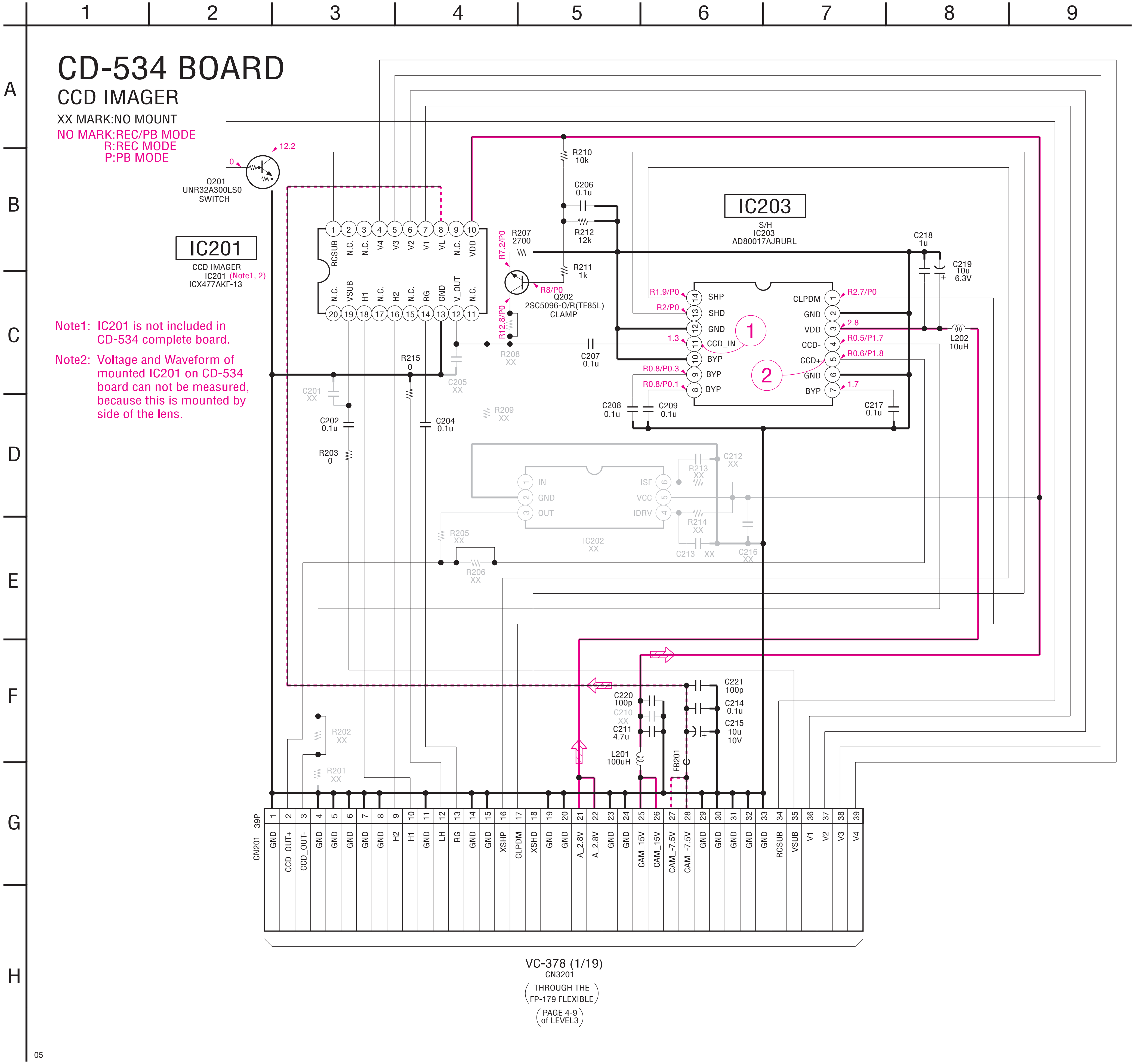

電子ビーム走査線
ブラウン管の画像枠

図b（テレビモニタの映像）

⚠印の部品，または⚠印付きの点線で囲まれた部品は，安全性を維持するために重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

お願い
図面番号で部品を指定するときは基板名又はブロックを併せて指定して下さい。

For Schematic Diagram
- Refer to page 4-65 for printed wiring board.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
Q201
UNR32A300LS0
SWITCH
12.2
0
IC201
CCD IMAGER
IC201 (Note1, 2)
ICX477AKF-13
RCSUB
N.C.
V4
V3
V2
V1
VL
VDD
VSUB
H1
H2
RG
GND
V_OUT
R207
2700
R7.2/P0
R8/P0
Q202
2SC5096-O/R(TE85L)
CLAMP
R12.8/P0
R210
10k
C206
0.1u
R212
12k
R211
1k
R215
0
C201
XX
C202
0.1u
R203
0
C204
0.1u
C205
XX
R208
XX
R209
XX
C207
0.1u
IC203
S/H
IC203
AD80017AJRURL
SHP
SHD
GND
CCD_IN
BYP
CLPDM
VDD
CCD-
CCD+
R1.9/P0
R2/P0
1.3
R0.8/P0.3
R0.8/P0.1
R2.7/P0
2.8
R0.5/P1.7
R0.6/P1.8
1.7
C208
0.1u
C209
0.1u
C217
0.1u
C218
1u
C219
10u
6.3V
L202
10uH
IC202
XX
IN
OUT
ISF
VCC
IDRV
R213
XX
C212
XX
R214
XX
C213
XX
C216
XX
R205
XX
R206
XX
R202
XX
R201
XX
C220
100p
C210
XX
C211
4.7u
L201
100uH
FB201
C221
100p
C214
0.1u
C215
10u
10V
CN201 39P
CCD_OUT+
CCD_OUT-
XSHP
CLPDM
XSHD
A_2.8V
CAM_15V
CAM_-7.5V
RCSUB
VSUB
V1
V2
V3
V4
LH
RG
H1
H2
VC-378 (1/19)
CN3201
THROUGH THE
FP-179 FLEXIBLE
PAGE 4-9
of LEVEL3

CD-534 BOARD

CCD IMAGER

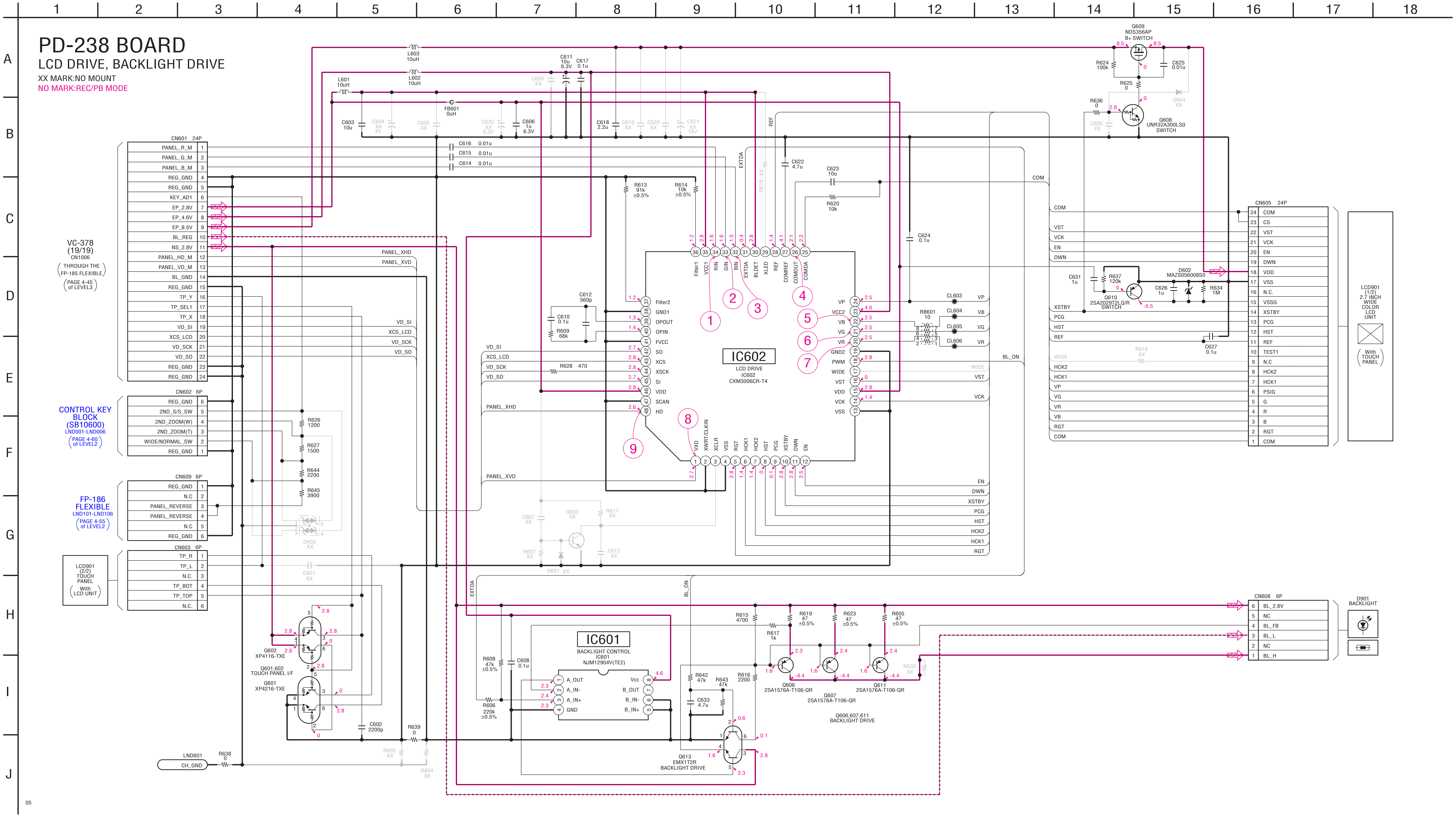
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

Note1: IC201 is not included in CD-534 complete board.

Note2: Voltage and Waveform of mounted IC201 on CD-534 board can not be measured, because this is mounted by side of the lens.

Schematic diagrams of the VC-378 board are not shown.
Pages from 4-9 to 4-46 are not shown.

For Schematic Diagram
- Refer to page 4-71 for printed wiring board.



PD-238 BOARD
LCD DRIVE, BACKLIGHT DRIVE

XX MARK:NO MOUNT
NO MARK:REC/PB MODE

1
2
3
4
5
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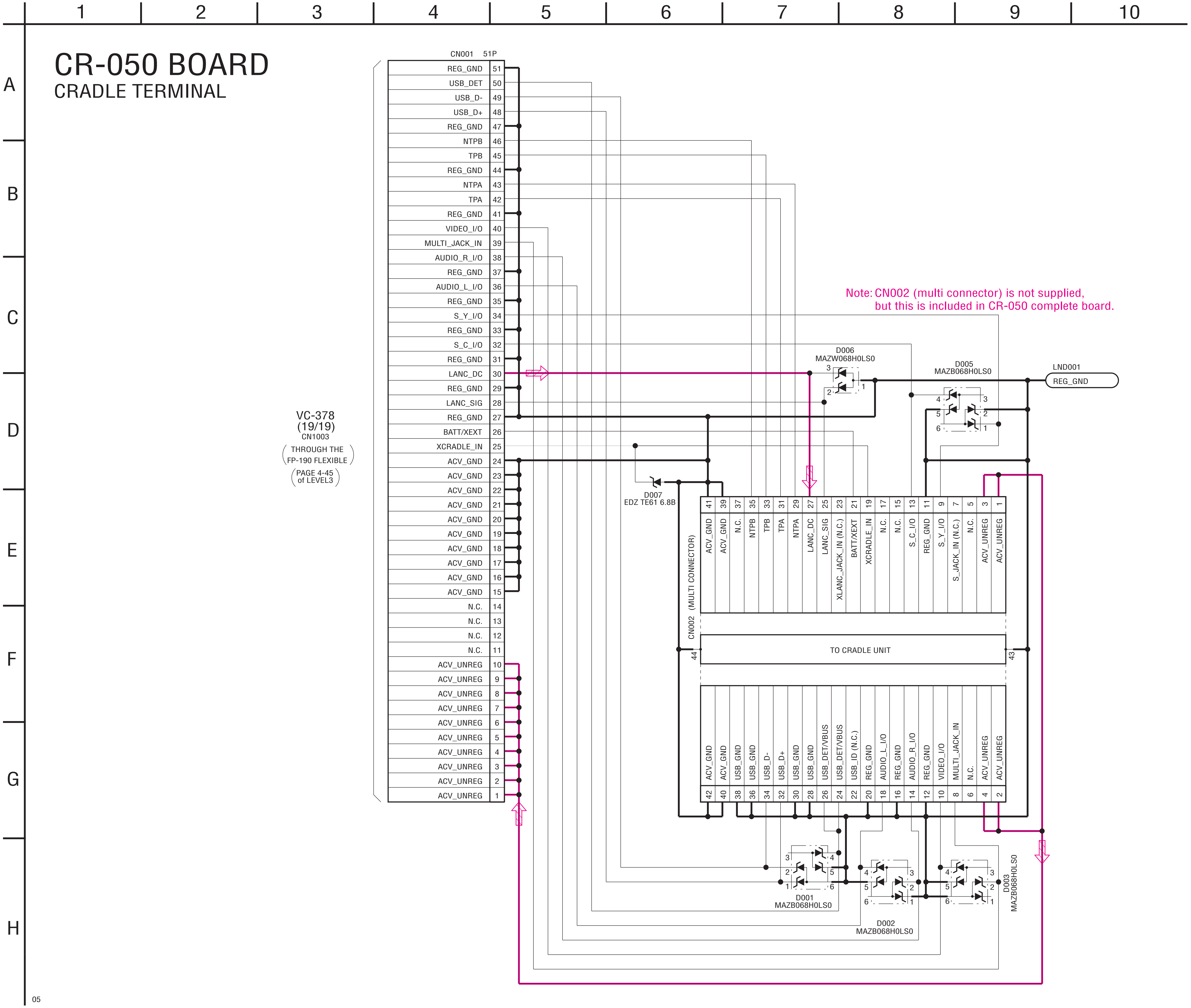
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
VC-378 (19/19) CN1006
THROUGH THE FP-185 FLEXIBLE
(PAGE 4-45 of LEVEL3)
CN601 24P
PANEL_R_M
PANEL_G_M
PANEL_B_M
REG_GND
KEY_AD1
EP_2.8V
EP_4.6V
EP_8.5V
BL_REG
NS_2.8V
PANEL_HD_M
PANEL_VD_M
BL_GND
TP_Y
TP_SEL1
TP_X
VD_SI
XCS_LCD
VD_SCK
VD_SO
CONTROL KEY BLOCK (SB10600)
LND001-LND006
(PAGE 4-60 of LEVEL2)
CN602 6P
2ND_S/S_SW
2ND_ZOOM(W)
2ND_ZOOM(T)
WIDE/NORMAL_SW
FP-186 FLEXIBLE
LND101-LND106
(PAGE 4-55 of LEVEL2)
CN609 6P
PANEL_REVERSE
N.C
LCD901 (2/2) TOUCH PANEL
(With LCD UNIT)
CN603 6P
TP_R
TP_L
TP_BOT
TP_TOP
LND601
CH_GND
R638 0
Q602 XP4116-TXE
Q601,602 TOUCH PANEL I/F
Q601 XP4216-TXE
C602 2200p
R639 0
L601 10uH
L602 10uH
L603 10uH
FB601 0uH
C603 10u
C606 1u 6.3V
C611 10u 6.3V
C617 0.1u
C618 2.2u
C616 0.01u
C615 0.01u
C614 0.01u
C612 560p
C610 0.1u
R609 68k
R628 470
R613 91k ±0.5%
R614 10k ±0.5%
C622 4.7u
C623 10u
R620 10k
C624 0.1u
IC602
LCD DRIVE
IC602
CXM3006CR-T4
Filter1
VCC1
RIN
GIN
BIN
EXTDA
BLDET
XLED
REF
COMREF
COMOUT
COMDA
Filter2
GND1
OPOUT
OPIN
FVCC
SO
XCS
XSCK
SI
VDD
SCAN
HD
VP
VCC2
VB
VG
VR
GND2
PWM
WIDE
VST
VCK
VSS
VXD
XWRT/CLKIN
XCLR
RGT
HCK1
HCK2
HST
PCG
XSTBY
DWN
EN
PANEL_XHD
PANEL_XVD
RB601 10
CL603
CL604
CL605
CL606
BL_ON
COM
Q609 NDS356AP B+ SWITCH
R624 100k
C625 0.01u
R625 0
R636 0
Q608 UNR32A300LS0 SWITCH
C631 1u
R637 120k
Q610 2SA2029T2LQ/R SWITCH
C626 1u
D602 MAZS0560080S0
R634 1M
C627 0.1u
CN605 24P
TEST1
VSSG
PSIG
LCD901 (1/2) 2.7 INCH WIDE COLOR LCD UNIT
(With TOUCH PANEL)
IC601
BACKLIGHT CONTROL
IC601
NJM12904V(TE2)
A_OUT
A_IN-
A_IN+
GND
Vcc
B_OUT
B_IN-
B_IN+
R608 47k ±0.5%
C608 0.1u
R606 220k ±0.5%
R615 4700
R617 1k
R619 47 ±0.5%
R623 47 ±0.5%
R605 47 ±0.5%
R642 47k
R643 47k
R616 2200
C633 4.7u
Q613 EMX1T2R BACKLIGHT DRIVE
Q606 2SA1576A-T106-QR
Q607 2SA1576A-T106-QR
Q611 2SA1576A-T106-QR
Q606,607,611 BACKLIGHT DRIVE
CN608 6P
BL_2.8V
NC
BL_FB
BL_L
BL_H
D901 BACKLIGHT
05

CR-050 BOARD
CRADLE TERMINAL


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
CN001 51P
REG_GND 51
USB_DET 50
USB_D- 49
USB_D+ 48
REG_GND 47
NTPB 46
TPB 45
REG_GND 44
NTPA 43
TPA 42
REG_GND 41
VIDEO_I/O 40
MULTI_JACK_IN 39
AUDIO_R_I/O 38
REG_GND 37
AUDIO_L_I/O 36
REG_GND 35
S_Y_I/O 34
REG_GND 33
S_C_I/O 32
REG_GND 31
LANC_DC 30
REG_GND 29
LANC_SIG 28
REG_GND 27
BATT/XEXT 26
XCRADLE_IN 25
ACV_GND 24
ACV_GND 23
ACV_GND 22
ACV_GND 21
ACV_GND 20
ACV_GND 19
ACV_GND 18
ACV_GND 17
ACV_GND 16
ACV_GND 15
N.C. 14
N.C. 13
N.C. 12
N.C. 11
ACV_UNREG 10
ACV_UNREG 9
ACV_UNREG 8
ACV_UNREG 7
ACV_UNREG 6
ACV_UNREG 5
ACV_UNREG 4
ACV_UNREG 3
ACV_UNREG 2
ACV_UNREG 1
VC-378 (19/19) CN1003
THROUGH THE FP-190 FLEXIBLE
PAGE 4-45 of LEVEL3
D006 MAZW068H0LS0
D005 MAZB068H0LS0
LND001
REG_GND
D007 EDZ TE61 6.8B
CN002 (MULTI CONNECTOR)
41 ACV_GND
39 ACV_GND
37 N.C.
35 NTPB
33 TPB
31 TPA
29 NTPA
27 LANC_DC
25 LANC_SIG
23 XLANC_JACK_IN (N.C.)
21 BATT/XEXT
19 XCRADLE_IN
17 N.C.
15 N.C.
13 S_C_I/O
11 REG_GND
9 S_Y_I/O
7 S_JACK_IN (N.C.)
5 N.C.
3 ACV_UNREG
1 ACV_UNREG
44
43
TO CRADLE UNIT
42 ACV_GND
40 ACV_GND
38 USB_GND
36 USB_GND
34 USB_D-
32 USB_D+
30 USB_GND
28 USB_GND
26 USB_DET/VBUS
24 USB_DET/VBUS
22 USB_ID (N.C.)
20 REG_GND
18 AUDIO_L_I/O
16 REG_GND
14 AUDIO_R_I/O
12 REG_GND
10 VIDEO_I/O
8 MULTI_JACK_IN
6 N.C.
4 ACV_UNREG
2 ACV_UNREG
D001 MAZB068H0LS0
D002 MAZB068H0LS0
D003 MAZB068H0LS0
05

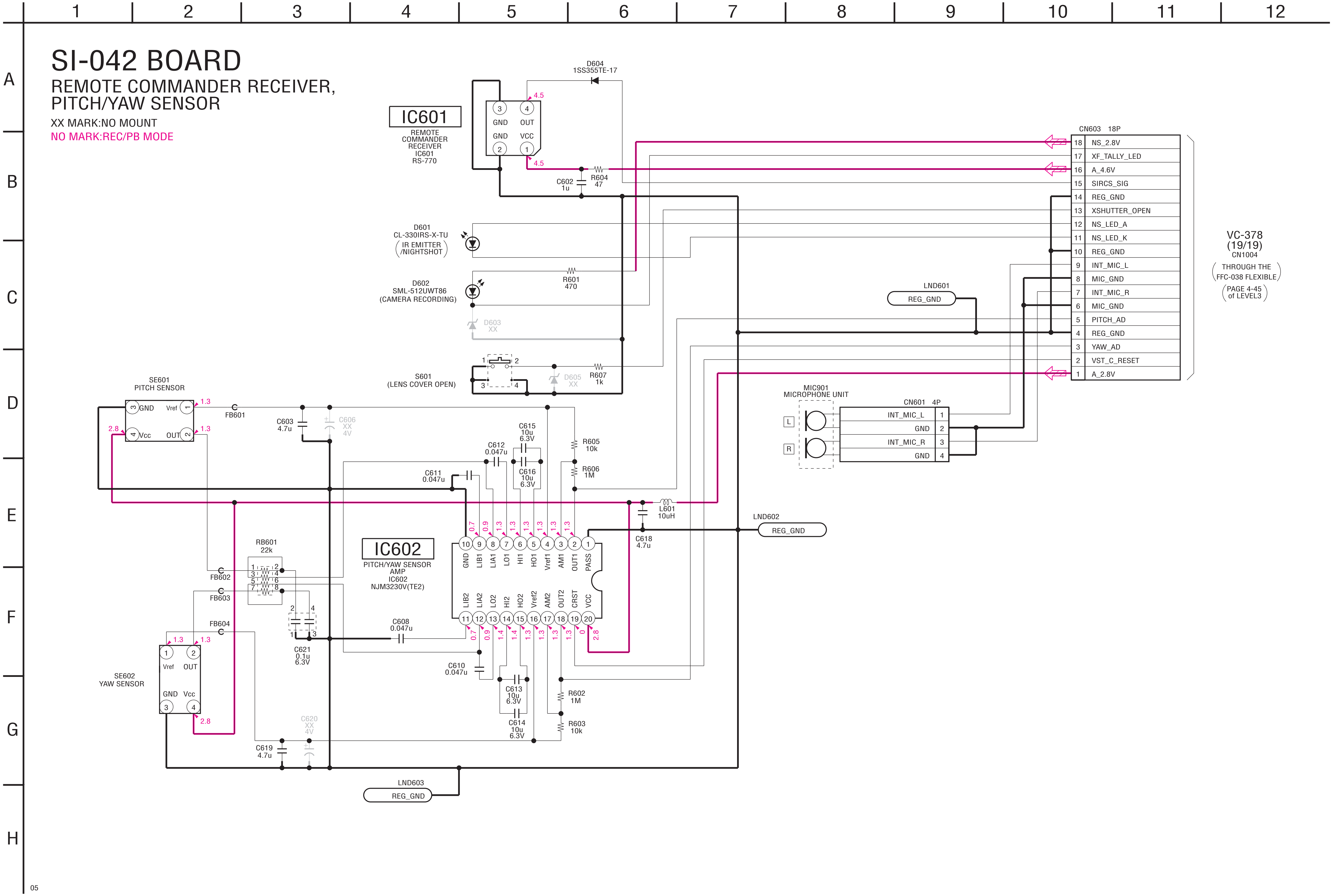
Note: CN002 (multi connector) is not supplied, but this is included in CR-050 complete board.

For Schematic Diagram
- Refer to page 4-74 for printed wiring board.

SI-042 BOARD

REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR

XX MARK:NO MOUNT
NO MARK:REC/PB MODE



1
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5
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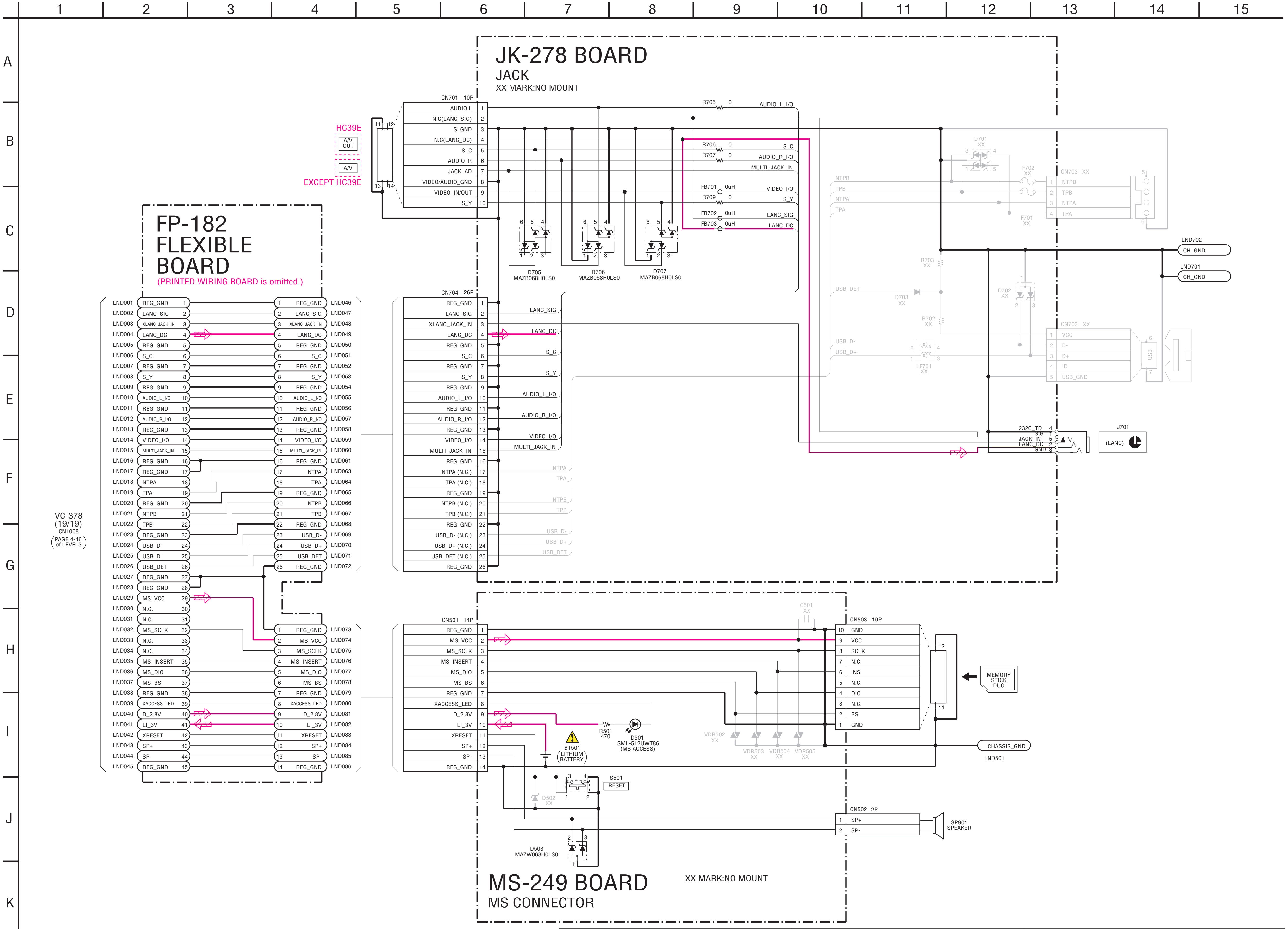
7
8
9
10
11
12
A
B
C
D
E
F
G
H
IC601
REMOTE COMMANDER RECEIVER
IC601
RS-770
GND
OUT
GND
VCC
4.5
4.5
D604
1SS355TE-17
C602
1u
R604
47
D601
CL-330IRS-X-TU
IR EMITTER /NIGHTSHOT
D602
SML-512UWT86
(CAMERA RECORDING)
R601
470
D603
XX
S601
(LENS COVER OPEN)
D605
XX
R607
1k
CN603 18P
18 NS_2.8V
17 XF_TALLY_LED
16 A_4.6V
15 SIRCS_SIG
14 REG_GND
13 XSHUTTER_OPEN
12 NS_LED_A
11 NS_LED_K
10 REG_GND
9 INT_MIC_L
8 MIC_GND
7 INT_MIC_R
6 MIC_GND
5 PITCH_AD
4 REG_GND
3 YAW_AD
2 VST_C_RESET
1 A_2.8V
VC-378 (19/19)
CN1004
THROUGH THE FFC-038 FLEXIBLE
PAGE 4-45 of LEVEL3
LND601
REG_GND
MIC901
MICROPHONE UNIT
L
R
CN601 4P
INT_MIC_L 1
GND 2
INT_MIC_R 3
GND 4
SE601
PITCH SENSOR
GND
Vref
Vcc
OUT
1.3
1.3
2.8
FB601
C603
4.7u
C606
XX
4V
C615
10u
6.3V
C612
0.047u
C616
10u
6.3V
C611
0.047u
R605
10k
R606
1M
L601
10uH
C618
4.7u
LND602
REG_GND
RB601
22k
FB602
FB603
FB604
IC602
PITCH/YAW SENSOR AMP
IC602
NJM3230V(TE2)
GND
LIB1
LIA1
LO1
HI1
HO1
Vref1
AM1
OUT1
PASS
LIB2
LIA2
LO2
HI2
HO2
Vref2
AM2
OUT2
CRST
VCC
0.7
0.9
1.3
1.3
1.3
1.3
1.3
1.3
0.7
0.9
1.4
1.4
1.3
1.3
1.3
1.3
0
2.8
C621
0.1u
6.3V
C608
0.047u
C610
0.047u
C613
10u
6.3V
C614
10u
6.3V
R602
1M
R603
10k
SE602
YAW SENSOR
Vref
OUT
GND
Vcc
1.3
1.3
2.8
C620
XX
4V
C619
4.7u
LND603
REG_GND
05

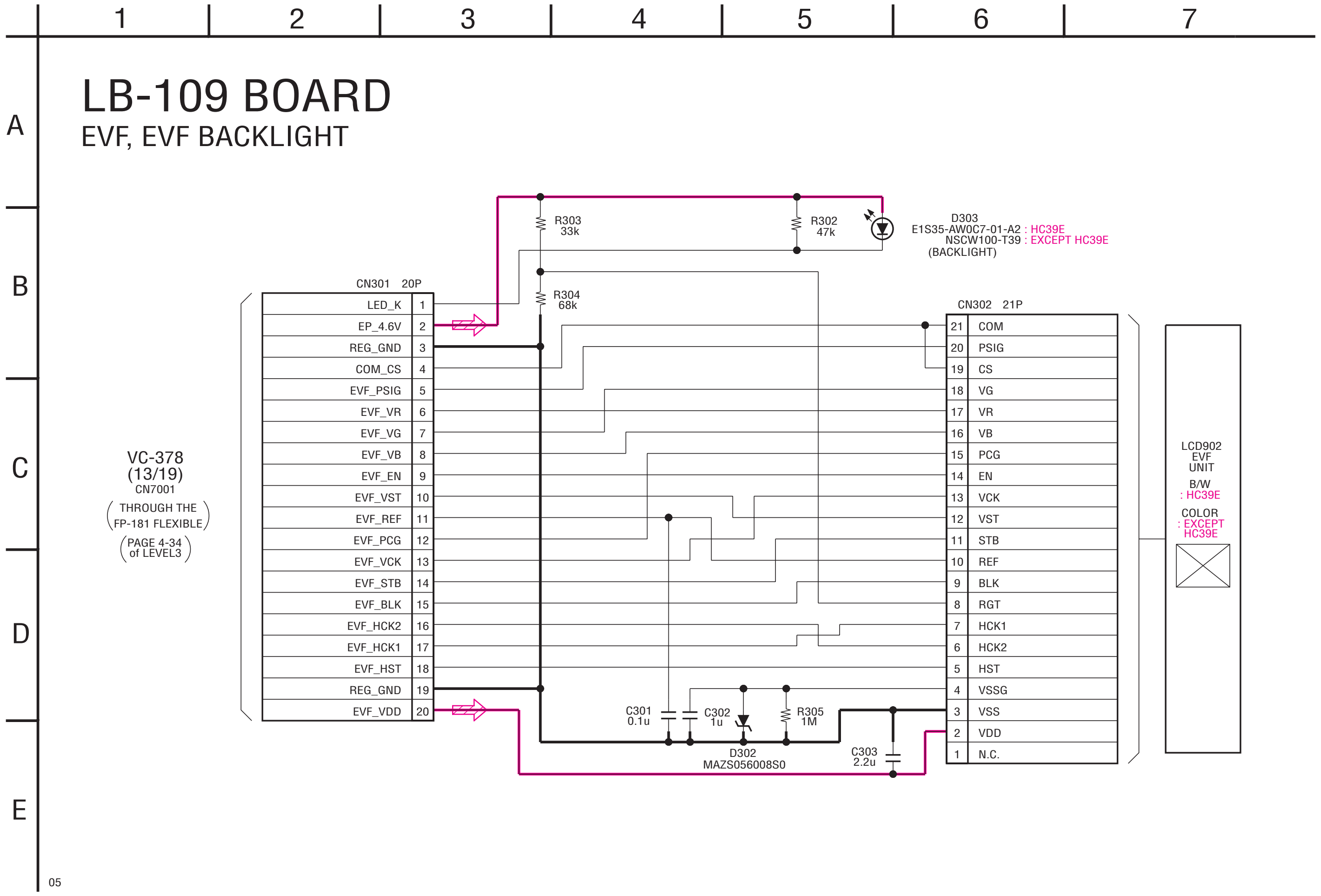
For Schematic Diagram
- Refer to page 4-75 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J K
JK-278 BOARD
JACK
XX MARK:NO MOUNT
CN701 10P
AUDIO L
N.C(LANC_SIG)
S_GND
N.C(LANC_DC)
S_C
AUDIO_R
JACK_AD
VIDEO/AUDIO_GND
VIDEO_IN/OUT
S_Y
HC39E
A/V OUT
A/V
EXCEPT HC39E
R705 0
AUDIO_L_I/O
R706 0
R707 0
S_C
AUDIO_R_I/O
MULTI_JACK_IN
FB701 0uH
R709 0
VIDEO_I/O
S_Y
FB702 0uH
FB703 0uH
LANC_SIG
LANC_DC
D705 MAZB068H0LS0
D706 MAZB068H0LS0
D707 MAZB068H0LS0
D701 XX
F702 XX
F701 XX
CN703 XX
NTPB
TPB
NTPA
TPA
LND702 CH_GND
LND701 CH_GND
R703 XX
D703 XX
D702 XX
R702 XX
USB_DET
USB_D-
USB_D+
LF701 XX
CN702 XX
VCC
D-
D+
ID
USB_GND
USB
232C_TD
SIG
JACK_IN
LANC_DC
GND
J701
(LANC)
FP-182 FLEXIBLE BOARD
(PRINTED WIRING BOARD is omitted.)
VC-378 (19/19) CN1008 PAGE 4-46 of LEVEL3
CN704 26P
REG_GND
LANC_SIG
XLANC_JACK_IN
LANC_DC
S_C
S_Y
AUDIO_L_I/O
AUDIO_R_I/O
VIDEO_I/O
MULTI_JACK_IN
NTPA (N.C.)
TPA (N.C.)
NTPB (N.C.)
TPB (N.C.)
USB_D- (N.C.)
USB_D+ (N.C.)
USB_DET (N.C.)
LND001 – LND045
LND046 – LND086
MS_VCC
MS_SCLK
MS_INSERT
MS_DIO
MS_BS
XACCESS_LED
D_2.8V
LI_3V
XRESET
SP+
SP-
N.C.
CN501 14P
C501 XX
CN503 10P
GND
VCC
SCLK
INS
DIO
BS
MEMORY STICK DUO
R501 470
D501 SML-512UWT86 (MS ACCESS)
BT501 (LITHIUM BATTERY)
VDR502 XX
VDR503 XX
VDR504 XX
VDR505 XX
CHASSIS_GND
LND501
S501 RESET
D502 XX
CN502 2P
SP901 SPEAKER
D503 MAZW068H0LS0
MS-249 BOARD
MS CONNECTOR
XX MARK:NO MOUNT
05

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.	⚠印の部品，または⚠印付きの点線で囲まれた部品は，安全性を維持するために重要な部品です。 従って交換時は，必ず指定の部品を使用して下さい。

For Schematic Diagram
- Refer to page 4-74 for printed wiring board.

LB-109 BOARD
EVF, EVF BACKLIGHT

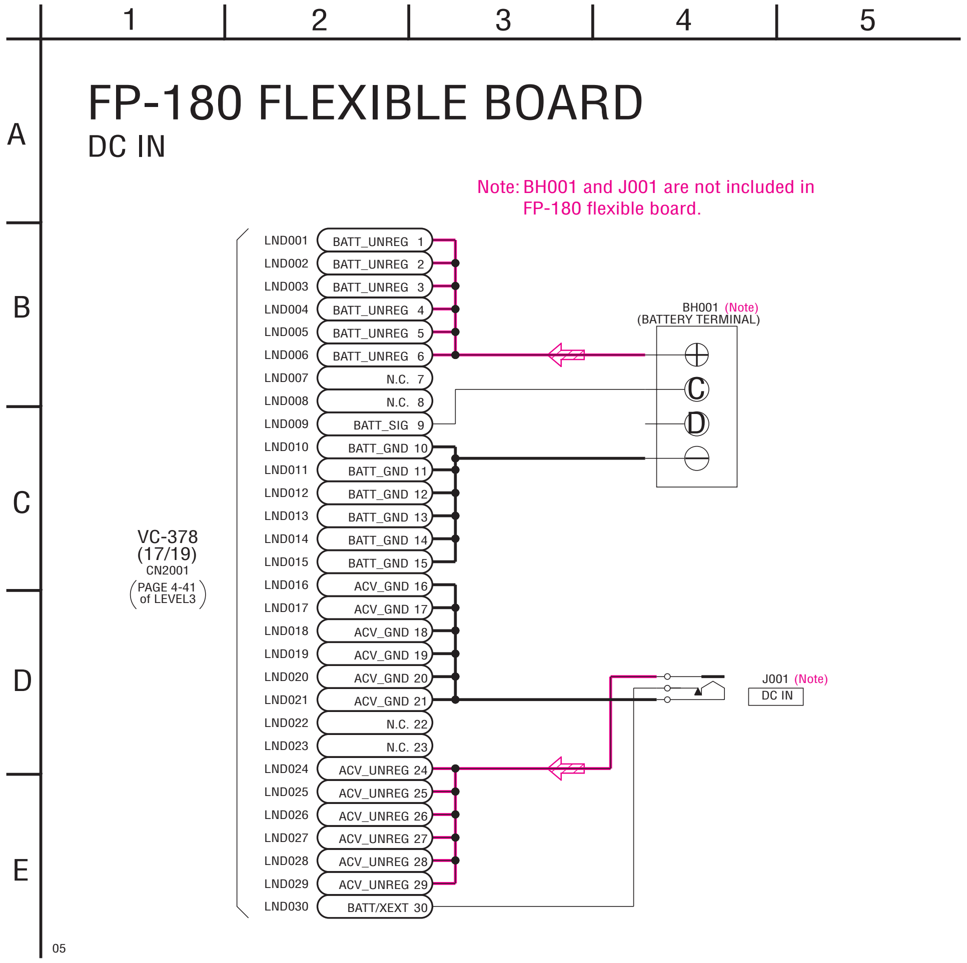


1 2 3 4 5 6 7
A B C D E
R303 33k
R302 47k
D303 E1S35-AW0C7-01-A2 : HC39E
NSCW100-T39 : EXCEPT HC39E
(BACKLIGHT)
R304 68k
CN301 20P
LED_K 1
EP_4.6V 2
REG_GND 3
COM_CS 4
EVF_PSIG 5
EVF_VR 6
EVF_VG 7
EVF_VB 8
EVF_EN 9
EVF_VST 10
EVF_REF 11
EVF_PCG 12
EVF_VCK 13
EVF_STB 14
EVF_BLK 15
EVF_HCK2 16
EVF_HCK1 17
EVF_HST 18
REG_GND 19
EVF_VDD 20
CN302 21P
21 COM
20 PSIG
19 CS
18 VG
17 VR
16 VB
15 PCG
14 EN
13 VCK
12 VST
11 STB
10 REF
9 BLK
8 RGT
7 HCK1
6 HCK2
5 HST
4 VSSG
3 VSS
2 VDD
1 N.C.
VC-378 (13/19) CN7001
THROUGH THE FP-181 FLEXIBLE
PAGE 4-34 of LEVEL3
LCD902 EVF UNIT
B/W : HC39E
COLOR : EXCEPT HC39E
C301 0.1u
C302 1u
R305 1M
D302 MAZS056008S0
C303 2.2u
05

For Schematic Diagram
- Refer to page 4-77 for printed wiring board.

FP-180 FLEXIBLE BOARD
DC IN

Note: BH001 and J001 are not included in FP-180 flexible board.

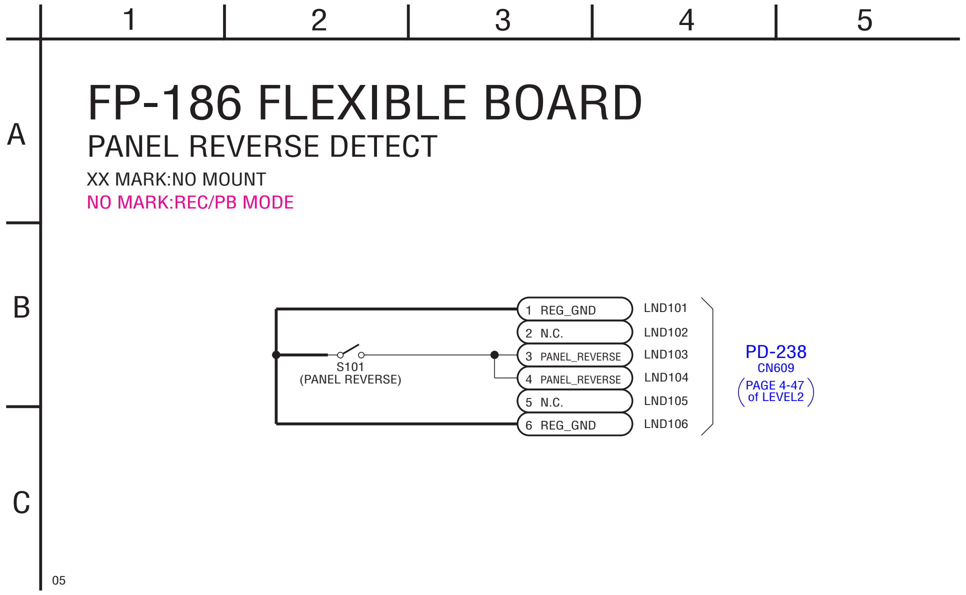


1 2 3 4 5
A B C D E
LND001 BATT_UNREG 1
LND002 BATT_UNREG 2
LND003 BATT_UNREG 3
LND004 BATT_UNREG 4
LND005 BATT_UNREG 5
LND006 BATT_UNREG 6
LND007 N.C. 7
LND008 N.C. 8
LND009 BATT_SIG 9
LND010 BATT_GND 10
LND011 BATT_GND 11
LND012 BATT_GND 12
LND013 BATT_GND 13
LND014 BATT_GND 14
LND015 BATT_GND 15
LND016 ACV_GND 16
LND017 ACV_GND 17
LND018 ACV_GND 18
LND019 ACV_GND 19
LND020 ACV_GND 20
LND021 ACV_GND 21
LND022 N.C. 22
LND023 N.C. 23
LND024 ACV_UNREG 24
LND025 ACV_UNREG 25
LND026 ACV_UNREG 26
LND027 ACV_UNREG 27
LND028 ACV_UNREG 28
LND029 ACV_UNREG 29
LND030 BATT/XEXT 30
BH001 (Note) (BATTERY TERMINAL)
C
D
J001 (Note)
DC IN
VC-378 (17/19) CN2001
PAGE 4-41 of LEVEL3
05

For Schematic Diagram
- Refer to page 4-78 for printed wiring board.

FP-186 FLEXIBLE BOARD
PANEL REVERSE DETECT

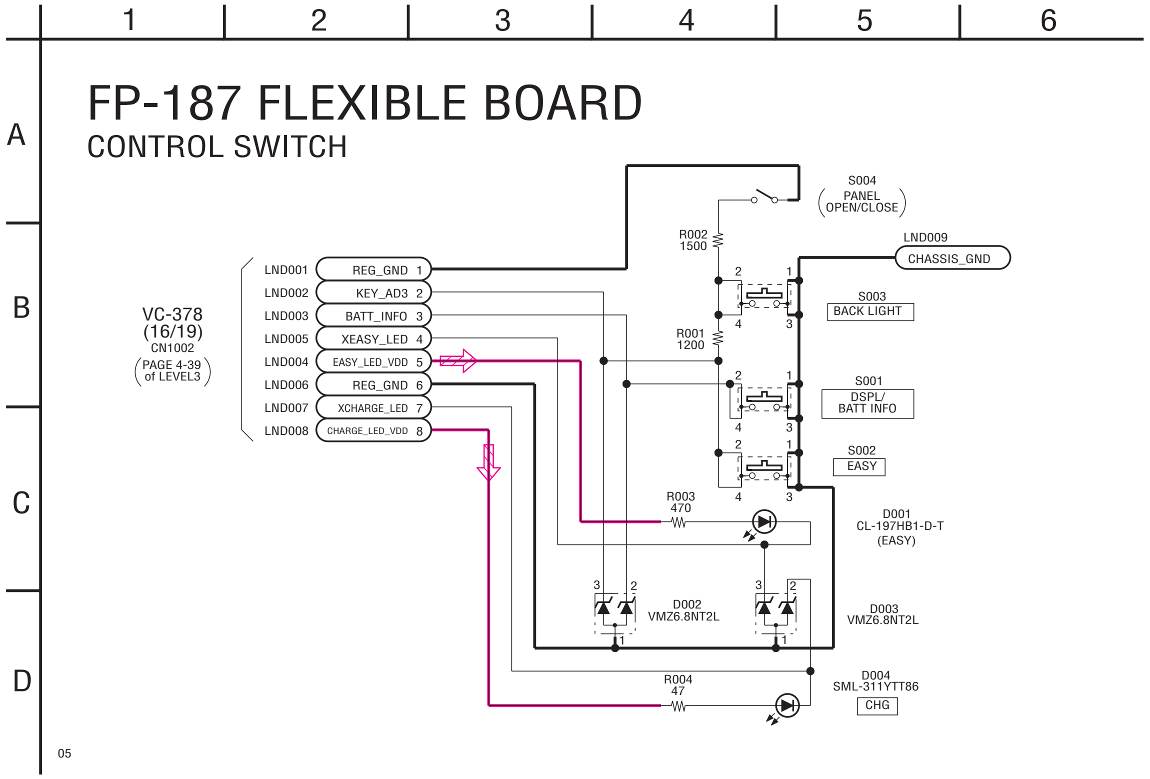
XX MARK:NO MOUNT
NO MARK:REC/PB MODE



1 2 3 4 5
A B C
S101 (PANEL REVERSE)
1 REG_GND LND101
2 N.C. LND102
3 PANEL_REVERSE LND103
4 PANEL_REVERSE LND104
5 N.C. LND105
6 REG_GND LND106
PD-238 CN609
PAGE 4-47 of LEVEL2
05

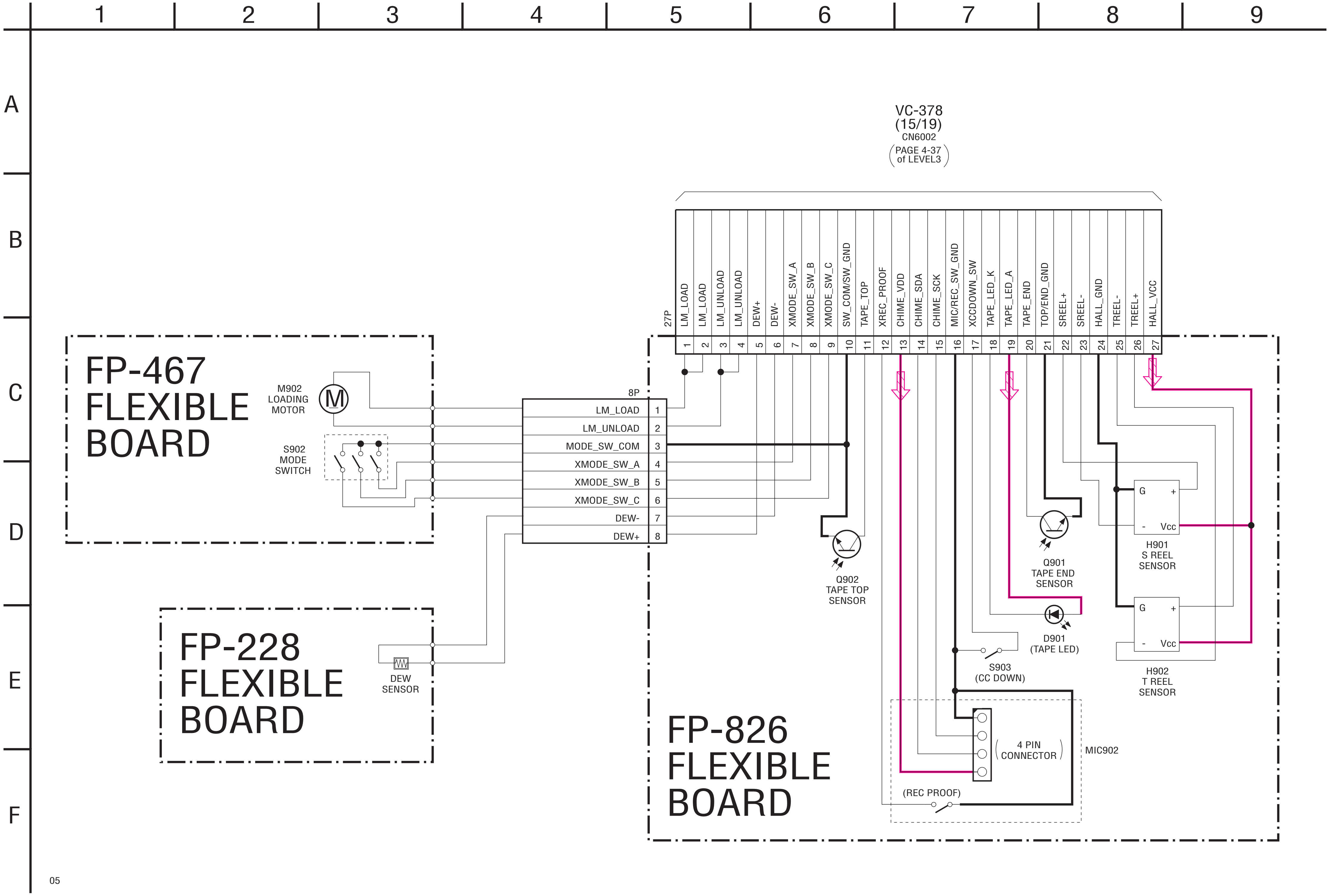
For Schematic Diagram
- Refer to page 4-77 for printed wiring board.

FP-187 FLEXIBLE BOARD
CONTROL SWITCH



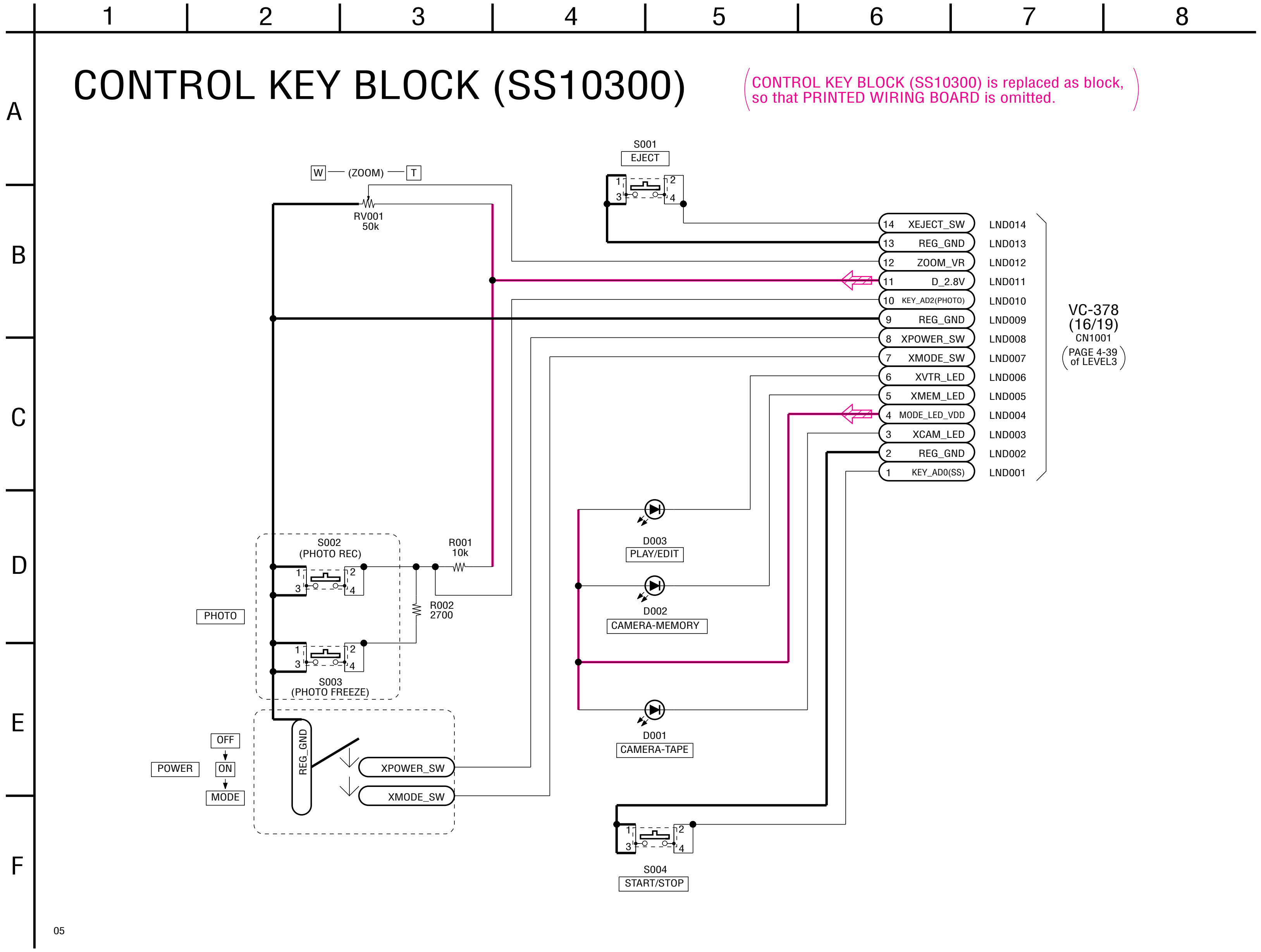
1 2 3 4 5 6
A B C D
S004 PANEL OPEN/CLOSE
R002 1500
LND009 CHASSIS_GND
LND001 REG_GND 1
LND002 KEY_AD3 2
LND003 BATT_INFO 3
LND005 XEASY_LED 4
LND004 EASY_LED_VDD 5
LND006 REG_GND 6
LND007 XCHARGE_LED 7
LND008 CHARGE_LED_VDD 8
VC-378 (16/19) CN1002
PAGE 4-39 of LEVEL3
S003 BACK LIGHT
R001 1200
S001 DSPL/ BATT INFO
S002 EASY
R003 470
D001 CL-197HB1-D-T (EASY)
D002 VMZ6.8NT2L
D003 VMZ6.8NT2L
R004 47
D004 SML-311YTT86 CHG
05

For Schematic Diagram
- Refer to page 4-79 for printed wiring board.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
VC-378
(15/19)
CN6002
(PAGE 4-37 of LEVEL3)
27P
1 LM_LOAD
2 LM_LOAD
3 LM_UNLOAD
4 LM_UNLOAD
5 DEW+
6 DEW-
7 XMODE_SW_A
8 XMODE_SW_B
9 XMODE_SW_C
10 SW_COM/SW_GND
11 TAPE_TOP
12 XREC_PROOF
13 CHIME_VDD
14 CHIME_SDA
15 CHIME_SCK
16 MIC/REC_SW_GND
17 XCCDOWN_SW
18 TAPE_LED_K
19 TAPE_LED_A
20 TAPE_END
21 TOP/END_GND
22 SREEL+
23 SREEL-
24 HALL_GND
25 TREEL-
26 TREEL+
27 HALL_VCC
FP-467 FLEXIBLE BOARD
M902 LOADING MOTOR
M
S902 MODE SWITCH
8P
LM_LOAD 1
LM_UNLOAD 2
MODE_SW_COM 3
XMODE_SW_A 4
XMODE_SW_B 5
XMODE_SW_C 6
DEW- 7
DEW+ 8
FP-228 FLEXIBLE BOARD
DEW SENSOR
Q902 TAPE TOP SENSOR
Q901 TAPE END SENSOR
D901 (TAPE LED)
S903 (CC DOWN)
G
+
-
Vcc
H901 S REEL SENSOR
H902 T REEL SENSOR
4 PIN CONNECTOR
MIC902
(REC PROOF)
FP-826 FLEXIBLE BOARD
05

CONTROL KEY BLOCK (SS10300)

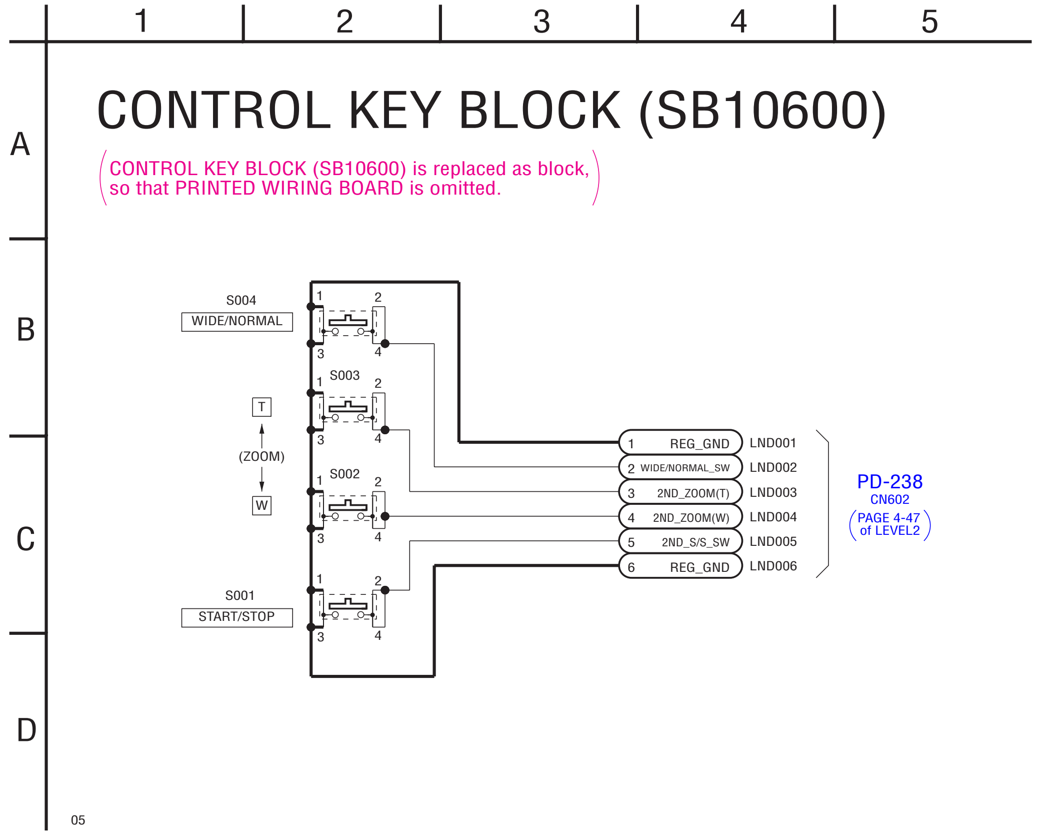
CONTROL KEY BLOCK (SS10300) is replaced as block, so that PRINTED WIRING BOARD is omitted.



1
2
3
4
5
6
7
8
A
B
C
D
E
F
W
(ZOOM)
T
RV001
50k
S001
EJECT
S002
(PHOTO REC)
R001
10k
R002
2700
S003
(PHOTO FREEZE)
PHOTO
OFF
ON
MODE
POWER
REG_GND
XPOWER_SW
XMODE_SW
D003
PLAY/EDIT
D002
CAMERA-MEMORY
D001
CAMERA-TAPE
S004
START/STOP
14 XEJECT_SW LND014
13 REG_GND LND013
12 ZOOM_VR LND012
11 D_2.8V LND011
10 KEY_AD2(PHOTO) LND010
9 REG_GND LND009
8 XPOWER_SW LND008
7 XMODE_SW LND007
6 XVTR_LED LND006
5 XMEM_LED LND005
4 MODE_LED_VDD LND004
3 XCAM_LED LND003
2 REG_GND LND002
1 KEY_AD0(SS) LND001
VC-378
(16/19)
CN1001
(PAGE 4-39 of LEVEL3)
05

CONTROL KEY BLOCK (SB10600)

CONTROL KEY BLOCK (SB10600) is replaced as block, so that PRINTED WIRING BOARD is omitted.



1
2
3
4
5
A
B
C
D
S004
WIDE/NORMAL
S003
T
(ZOOM)
W
S002
S001
START/STOP
1 REG_GND LND001
2 WIDE/NORMAL_SW LND002
3 2ND_ZOOM(T) LND003
4 2ND_ZOOM(W) LND004
5 2ND_S/S_SW LND005
6 REG_GND LND006
PD-238
CN602
(PAGE 4-47 of LEVEL2)
05

4-3. PRINTED WIRING BOARDS

Link

- CD-534 BOARD
- JK-278 BOARD
- PD-238 BOARD
- MS-249 BOARD
- CR-050 BOARD
- FP-180, FP-186, FP-187 FLEXIBLE BOARD
- SI-042 BOARD
- FP-826, FP-467, FP-228 FLEXIBLE BOARD
- LB-109 BOARD

- COMMON NOTE FOR PRINTED WIRING BOARDS
- WAVEFORMS
- MOUNTED PARTS LOCATION
- CIRCUIT BOARDS LOCATION
- FLEXIBLE BOARDS LOCATION

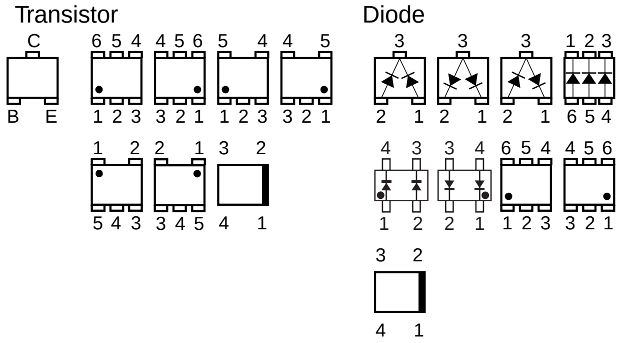
Board Name	Function
CD-534	CCD IMAGER
PD-238	LCD DRIVE, BACKLIGHT DRIVE
CR-050	CRADLE TERMINAL
SI-042	REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR
LB-109	EVF, EVF BACKLIGHT
JK-278	JACK
MS-249	MS CONNECTOR
FP-180	DC IN
FP-186	PANEL REVERSE DETECT
FP-187	CONTROL SWITCH

4-3. PRINTED WIRING BOARDS

(ENGLISH)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

- LF : Uses unleaded solder.
- 🟩: Circuit board
  🟧: Flexible board
  Pattern from the side which enables seeing.
  ▨ : pattern of the rear side
  (The other layers' patterns are not indicated)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- ▭: panel designation
- Chip parts.



(JAPANESE)

プリント図共通ノート

【プリント図ノート】

・LF：無鉛半田を使用しています。
・🟩：基板
　🟧：フレキシブル配線板
　見ている面側のパターン。
　▨：裏側のパターン
　（他のパターンについては表示されていません）
・スルーホールは省略。
・○番号は波形図の照合番号。
・プリント図には，本機で使用していない部品が記載されている場合があります。
・▭はパネル表示名称。

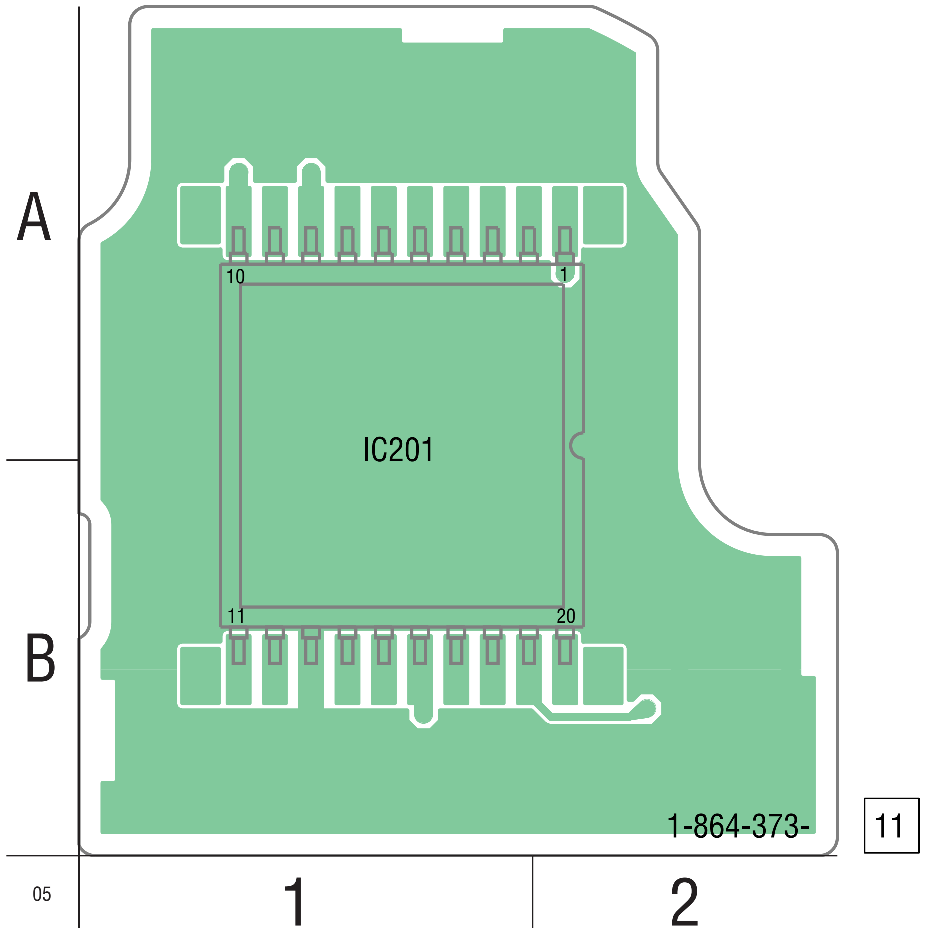
BOARD INFORMATION

Board Name	Waveform (Shown on Page)	Parts Location (Shown on Page)	Pattern	
			Total Number of Layers	Layers Not Indicated
CD-534	4-81	4-89	4 layers	2 to 3 layers
PD-238	4-88	4-92	2 layers	–
CR-050	–	–	2 layers	–
SI-042	–	4-92	2 layers	–
LB-109	–	–	2 layers	–
JK-278	–	4-92	2 layers	–
MS-249	–	–	2 layers	–
FP-180 Flexible	–	–	1 layer	–
FP-186 Flexible	–	–	1 layer	–
FP-187 Flexible	–	–	1 layer	–
FP-826 Flexible	–	–	1 layer	–
FP-467 Flexible	–	–	1 layer	–
FP-228 Flexible	–	–	1 layer	–

Note for Printed Wiring Board (See page 4-63).

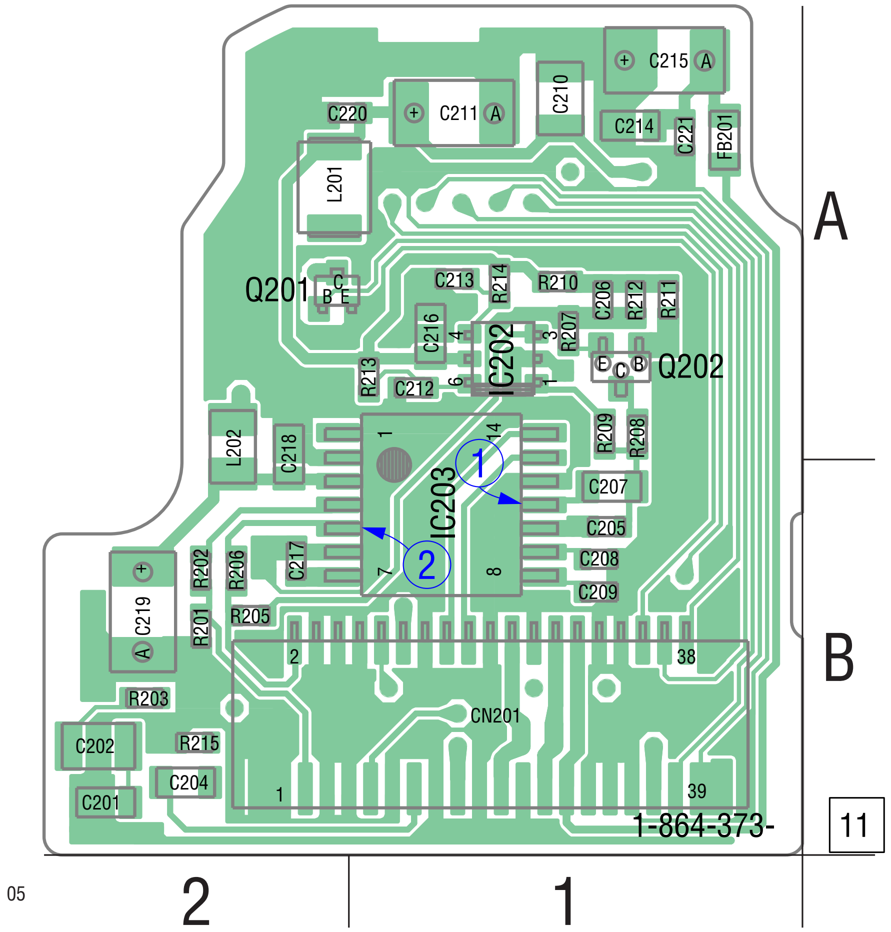
LF : Uses unleaded solder.

CD-534 BOARD (SIDE A)


A
B
10
1
IC201
11
20
1-864-373-
11
05
1
2

Note: IC201 is not included in CD-534 complete board.

CD-534 BOARD (SIDE B)


C215
C210
C220
C211
C214
C221
FB201
L201
Q201
C
B
E
C213
R214
R210
C206
R212
R211
C216
IC202
R207
Q202
R213
C212
L202
C218
R209
R208
IC203
C207
C205
C208
C209
①
②
C217
R202
R206
C219
R201
R205
2
38
R203
CN201
C202
R215
C204
C201
1
39
1-864-373-
11
A
B
05
2
1

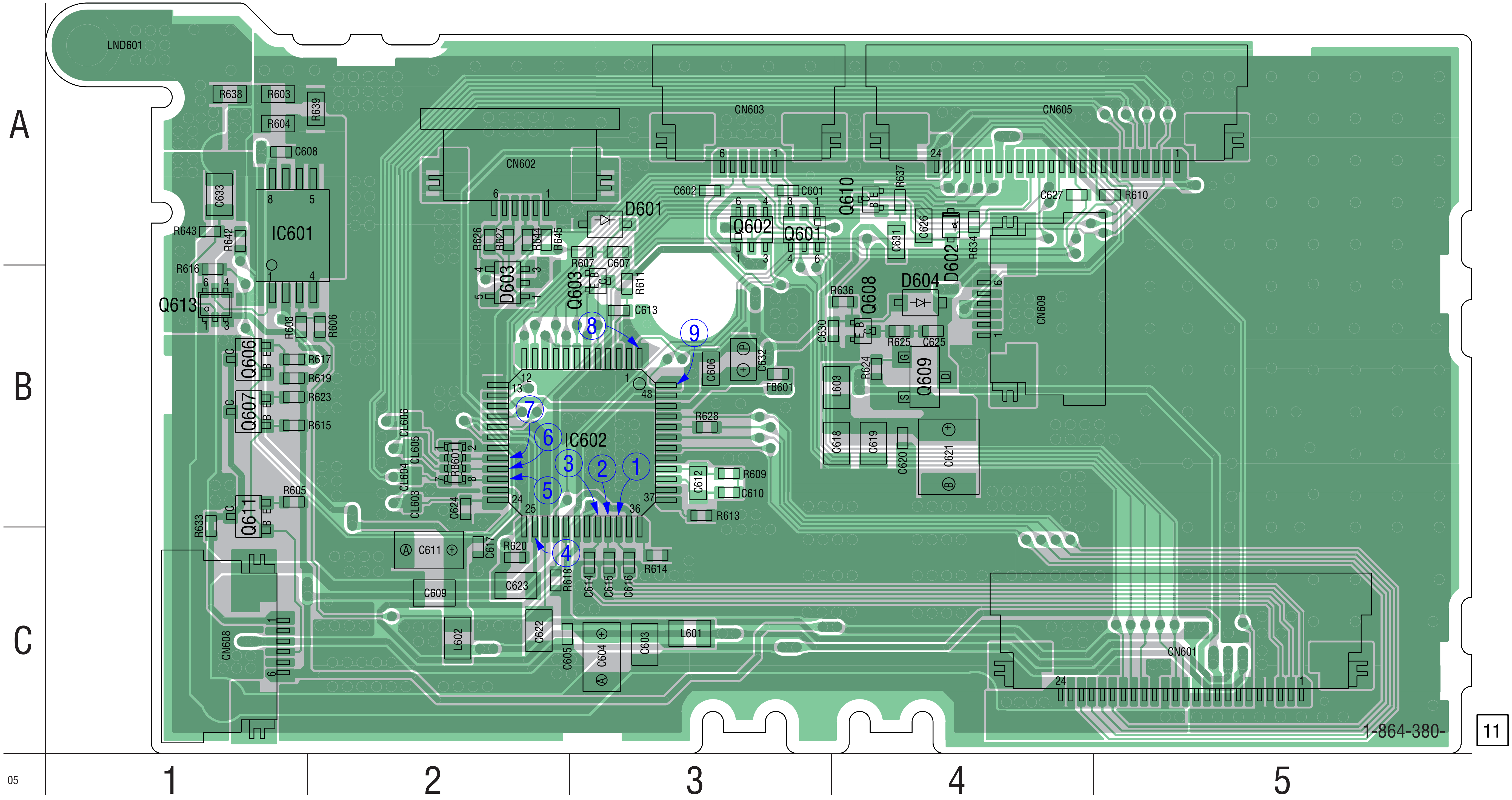
Printed wiring boards of the VC-378 board are not shown.
Pages from 4-67 to 4-70 are not shown.

PD-238

Note for Printed Wiring Board (See page 4-63).

: Uses unleaded solder.

PD-238 BOARD



A
B
C
1
2
3
4
5
05
LND601
R638
R603
R639
R604
C608
C633
IC601
R643
R642
R616
Q613
R608
R606
Q606
R617
R619
R623
Q607
R615
R605
R633
Q611
CN608
CN602
R626
R627
R644
R645
D603
D601
R607
C607
Q603
R611
C613
IC602
CL606
CL605
CL604
CL603
RB601
C624
C611
C609
C617
R620
C623
R618
C614
C615
C616
R614
L602
C622
C605
C604
C603
L601
C606
C632
FB601
R628
C612
R609
C610
R613
CN603
C602
C601
Q602
Q601
Q610
R637
C631
C626
D602
R634
R636
Q608
D604
C630
R625
C625
R624
Q609
C603
L603
C618
C619
C620
C621
CN605
C627
R610
CN609
CN601
1-864-380-
11
①
②
③
④
⑤
⑥
⑦
⑧
⑨

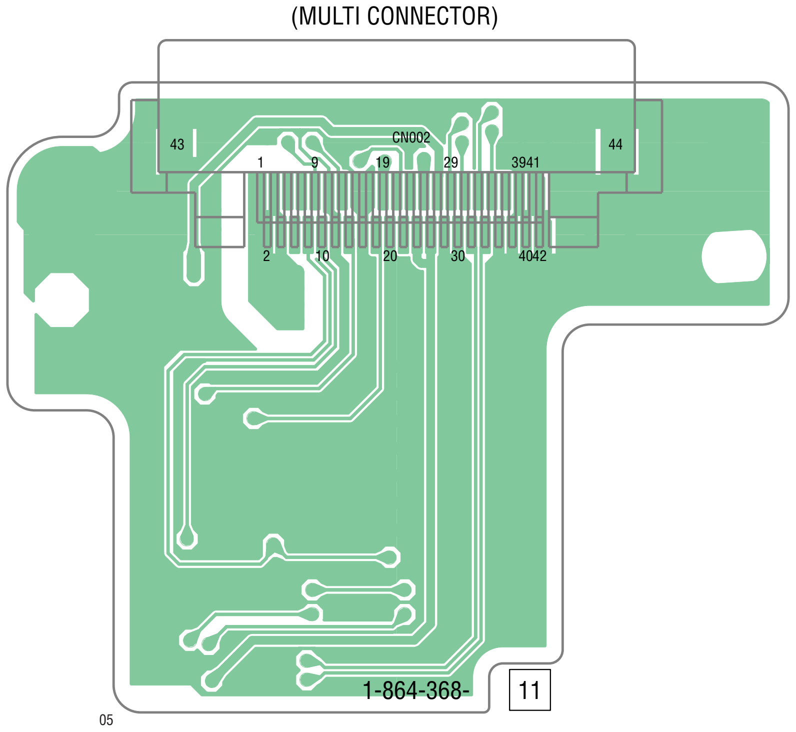
Note for Printed Wiring Board (See page 4-63).

CR-050

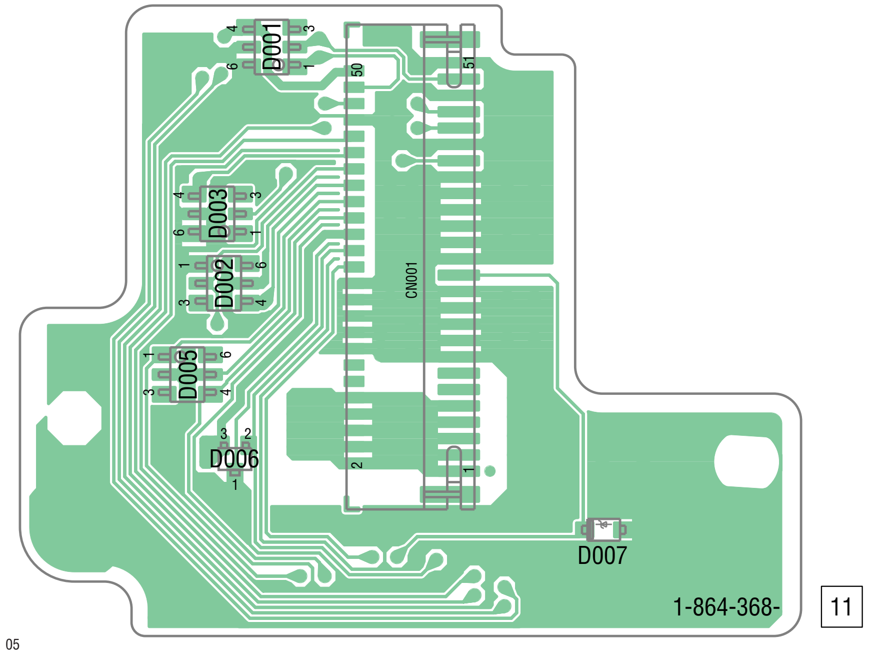
: **Uses unleaded solder.**

CR-050 BOARD (SIDE A)

Note: CN002 (multi connector) is not supplied,
but this is included in CR-050 complete board.


(MULTI CONNECTOR)
CN002
43
44
1
9
19
29
3941
2
10
20
30
4042
1-864-368-
11
05

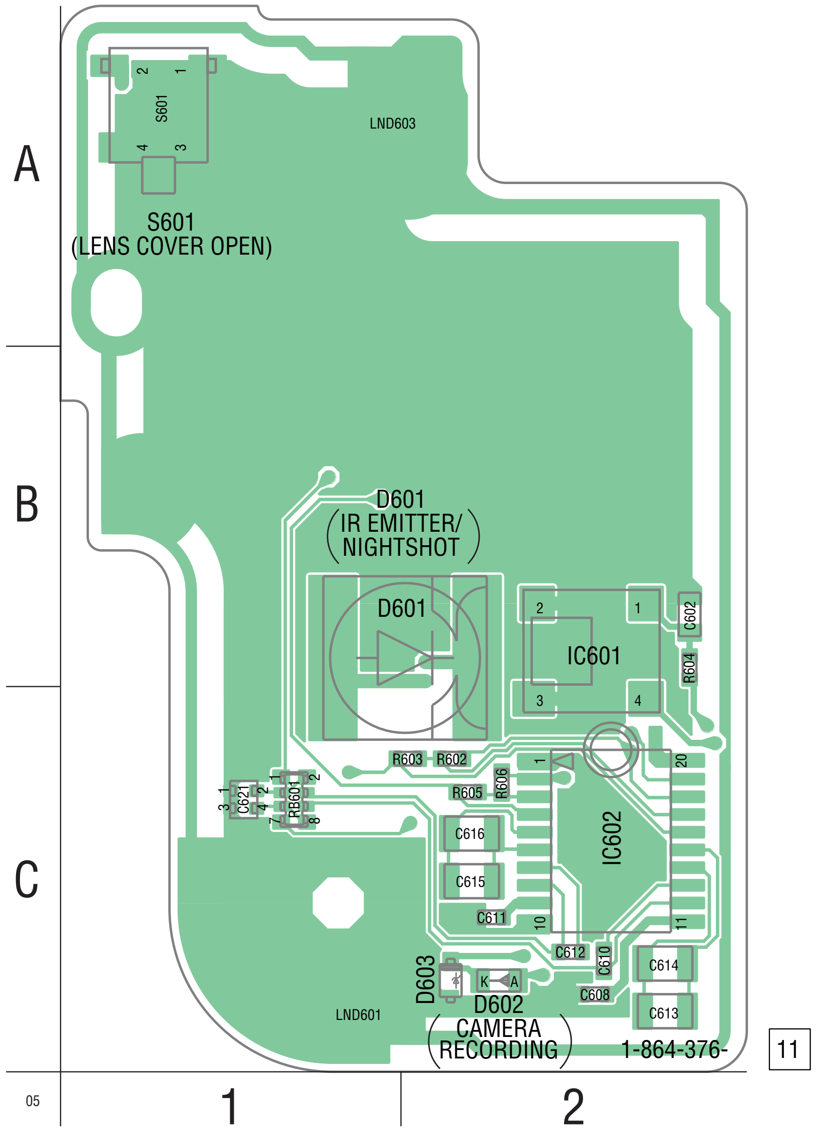
CR-050 BOARD (SIDE B)


D001
D003
D002
D005
D006
D007
CN001
50
51
2
1
1-864-368-
11
05

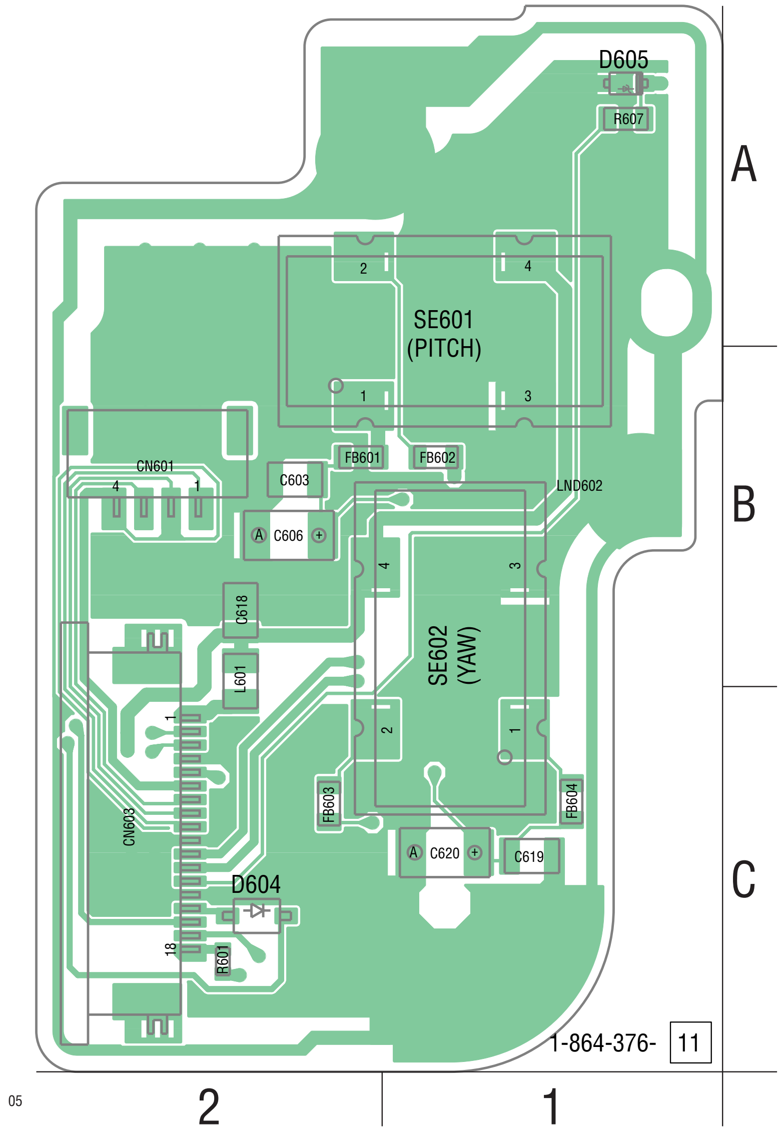
SI-042

: **Uses unleaded solder.**

SI-042 BOARD (SIDE A)


A
B
C
1
2
S601
LND603
S601
(LENS COVER OPEN)
D601
(IR EMITTER/
NIGHTSHOT)
D601
IC601
C602
R604
R603
R602
R605
R606
C621
RB601
C616
C615
C611
IC602
C612
C610
C614
C608
C613
D603
D602
CAMERA
RECORDING
LND601
1-864-376-
11
05

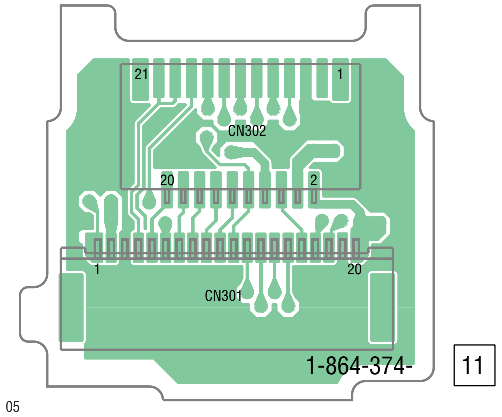
SI-042 BOARD (SIDE B)


A
B
C
2
1
D605
R607
SE601
(PITCH)
FB601
FB602
CN601
C603
C606
LND602
C618
L601
SE602
(YAW)
CN603
FB603
FB604
C620
C619
D604
R601
1-864-376-
11
05

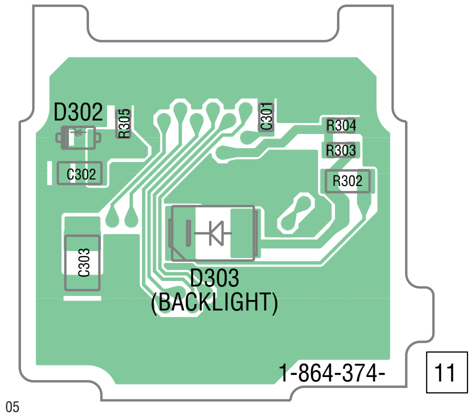
LB-109

: **Uses unleaded solder.**

LB-109 BOARD (SIDE A)


21
1
CN302
20
2
1
20
CN301
1-864-374-
11
05

LB-109 BOARD (SIDE B)

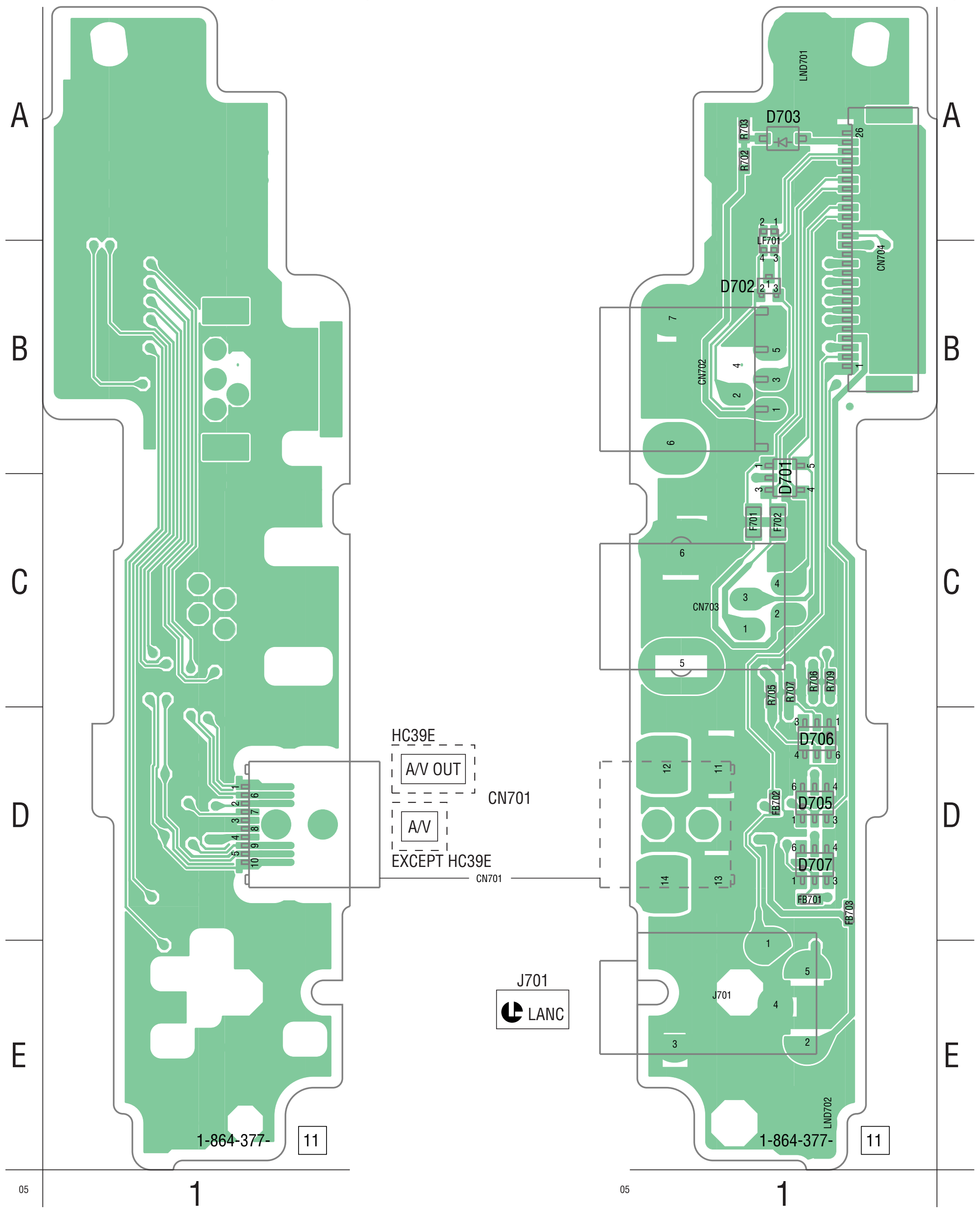

D302
R305
C301
R304
R303
R302
C302
C303
D303
(BACKLIGHT)
1-864-374-
11
05

Note for Printed Wiring Board (See page 4-63).

JK-278

LF : Uses unleaded solder.

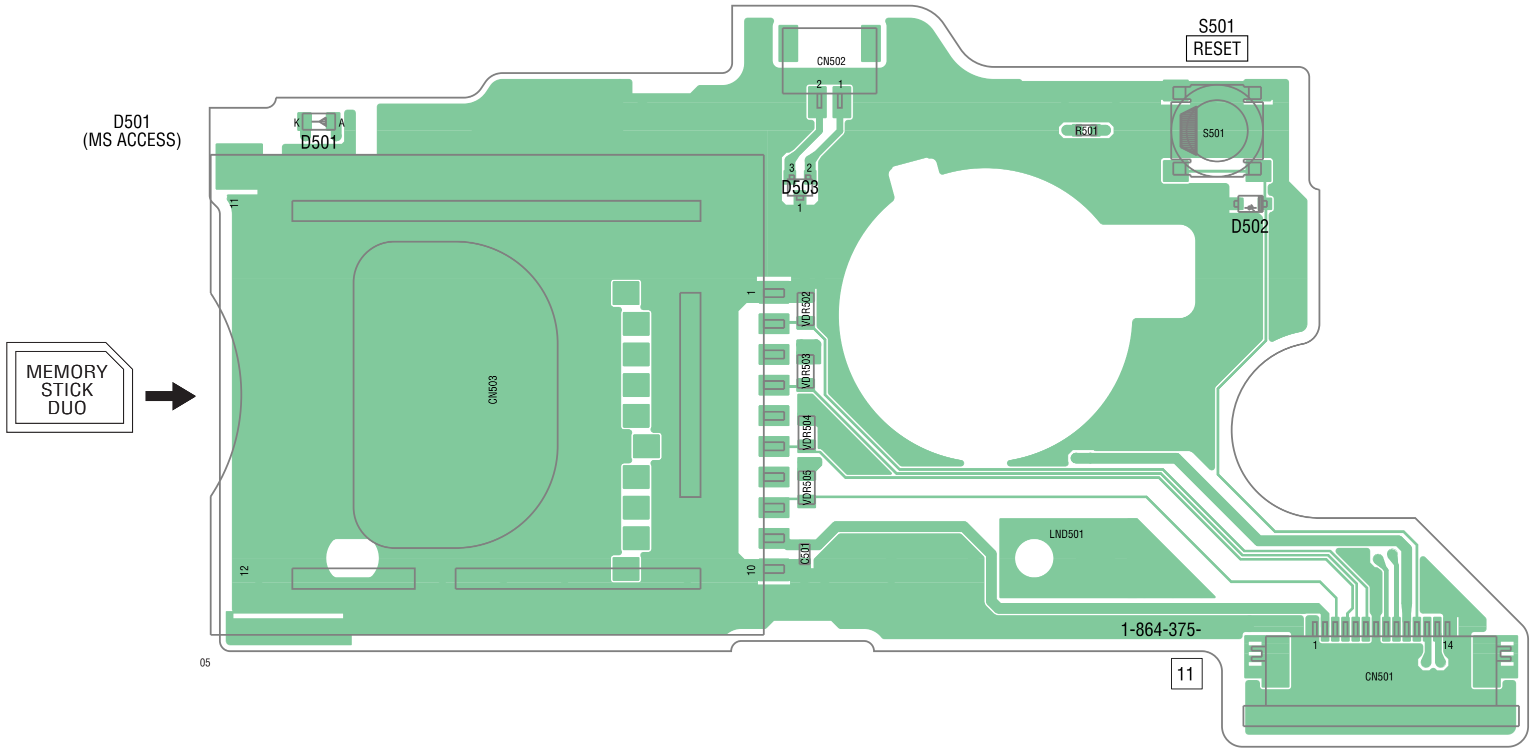
JK-278 BOARD (SIDE A)　　JK-278 BOARD (SIDE B)


A
B
C
D
E
HC39E
A/V OUT
A/V
EXCEPT HC39E
CN701
J701
LANC
D703
D702
D701
D706
D705
D707
CN702
CN703
CN704
R702
R703
F701
F702
R705
R707
R708
R709
LND701
LND702
1-864-377-
11
05
1

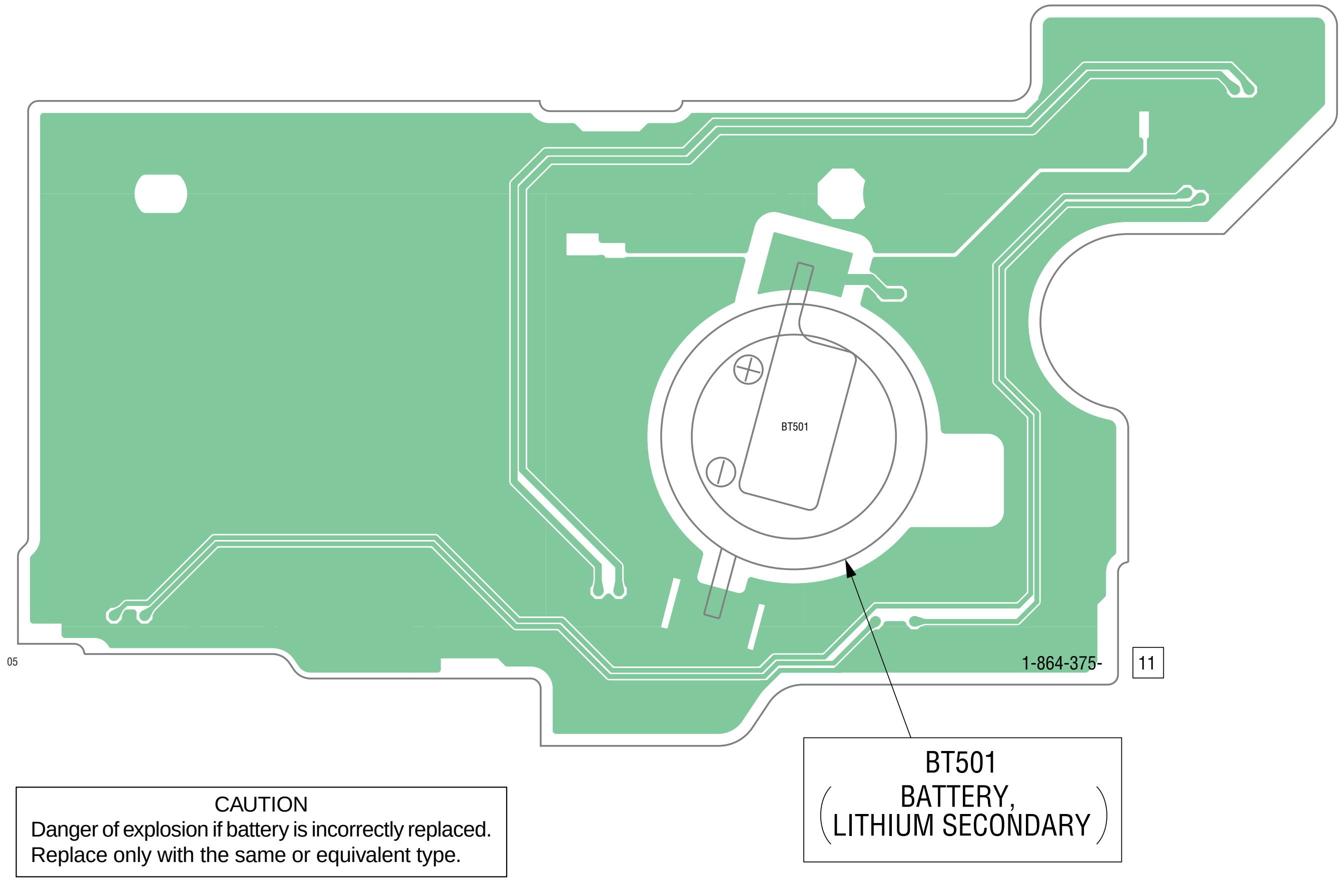
MS-249

LF : Uses unleaded solder.

MS-249 BOARD (SIDE A)


D501
(MS ACCESS)
MEMORY
STICK
DUO
S501
RESET
CN502
D501
D503
D502
CN503
CN501
LND501
1-864-375-
11
05

MS-249 BOARD (SIDE B)


BT501
1-864-375-
11
05
BT501
BATTERY,
LITHIUM SECONDARY

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

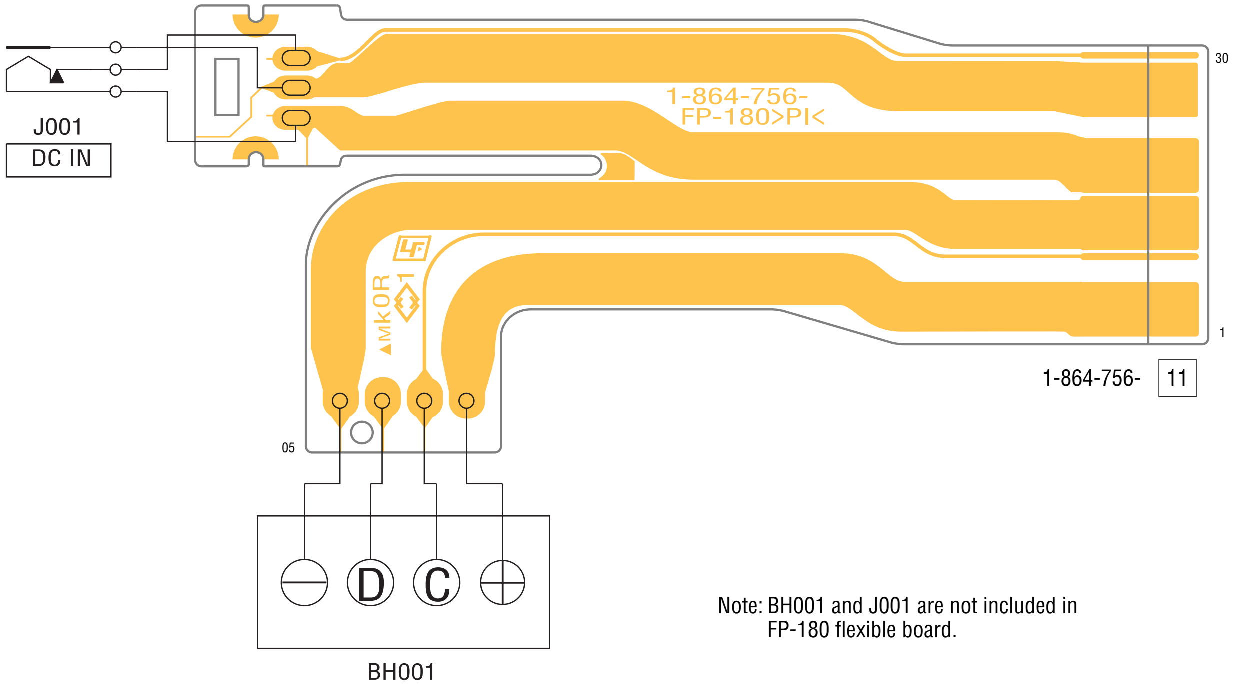
注意
電池の交換は，正しく行わないと破裂する恐れがあります。電池を交換する場合には必ず同じ型名の電池又は同等品と交換してください。

Note for Printed Wiring Board (See page 4-63).

FP-180

: Uses unleaded solder.

FP-180 FLEXIBLE BOARD

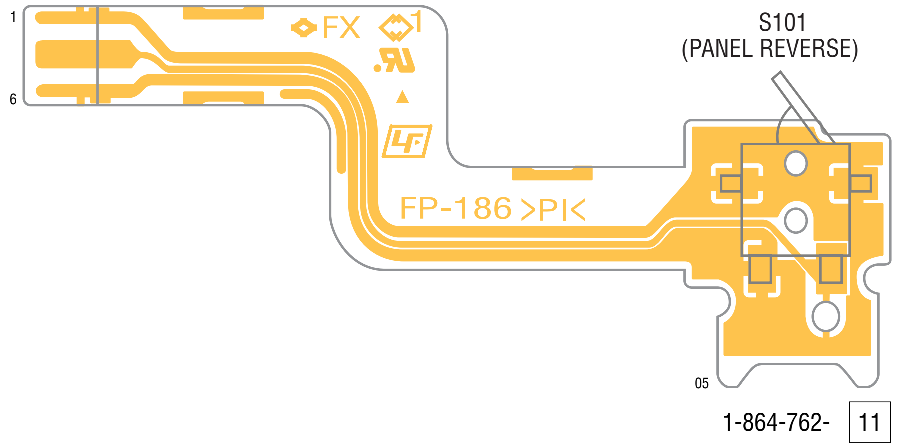

J001
DC IN
1-864-756-
FP-180>PI<
30
1
05
1-864-756- 11
D
C
BH001

Note: BH001 and J001 are not included in
FP-180 flexible board.

FP-186

: Uses unleaded solder.

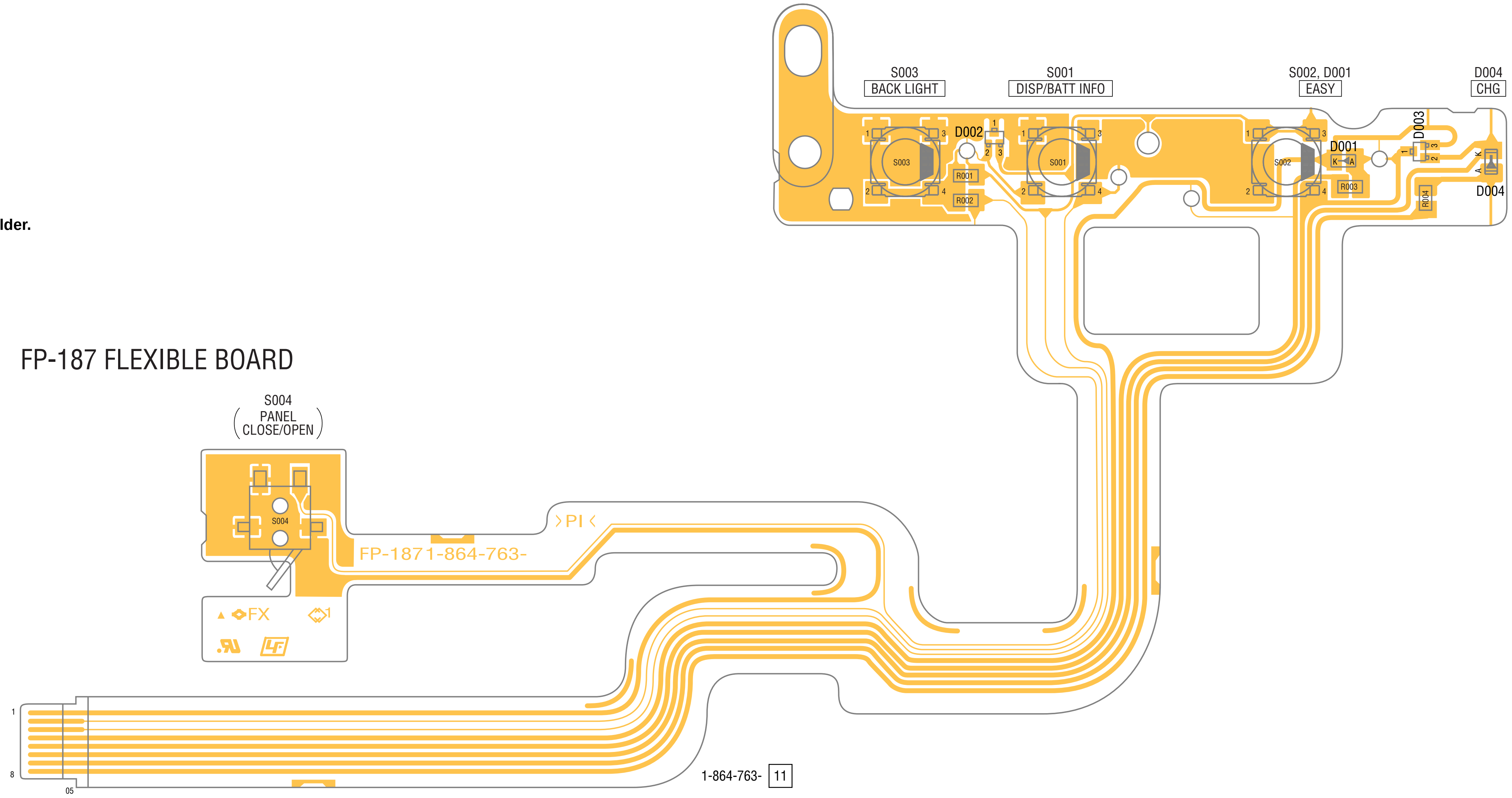
FP-186 FLEXIBLE BOARD


1
6
FX
FP-186 >PI<
S101
(PANEL REVERSE)
05
1-864-762- 11

FP-187

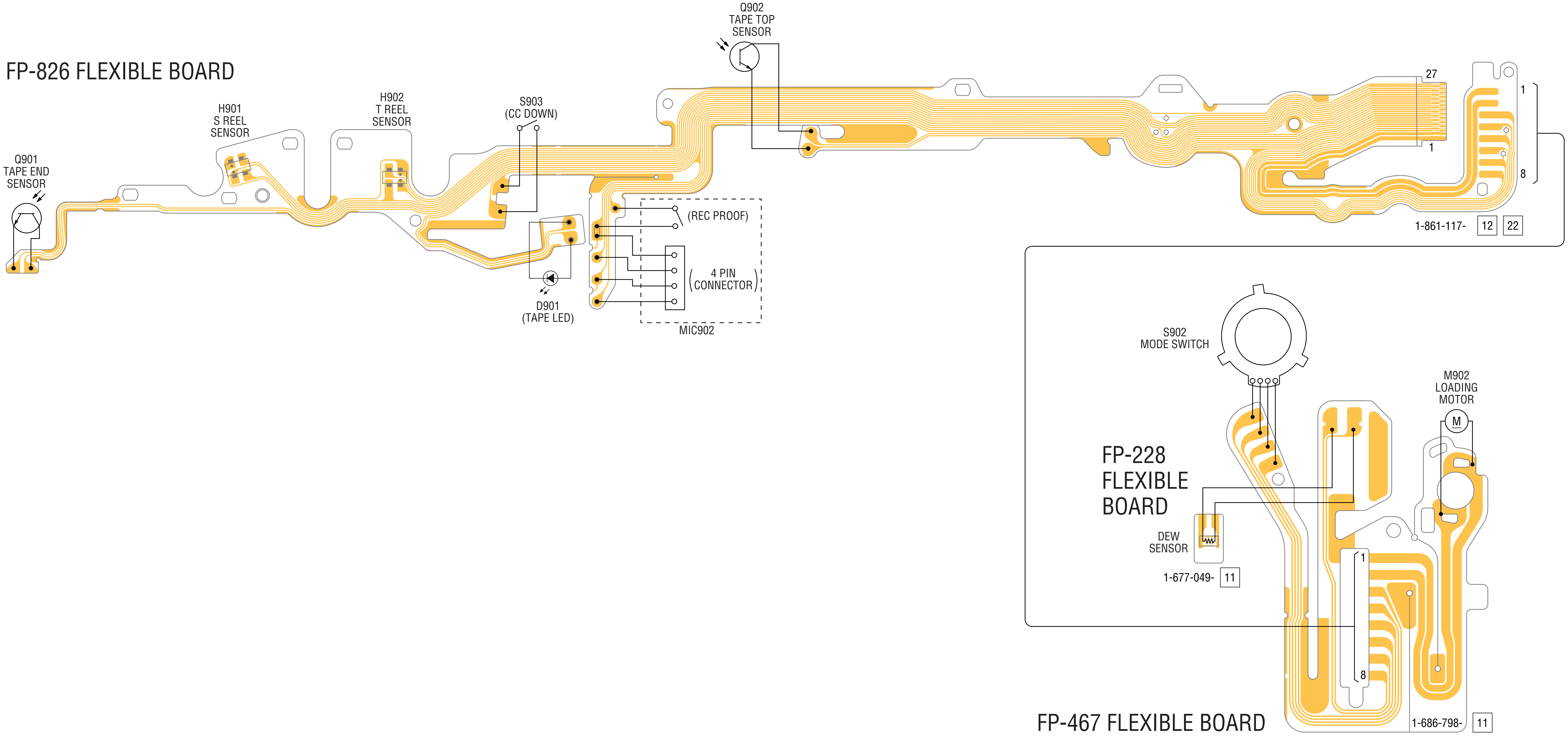
: Uses unleaded solder.

FP-187 FLEXIBLE BOARD


S003
BACK LIGHT
S001
DISP/BATT INFO
S002, D001
EASY
D004
CHG
D002
D001
D003
D004
R001
R002
R003
R004
S003
S001
S002
S004
PANEL
CLOSE/OPEN
S004
FP-187 1-864-763-
>PI<
FX
1
8
05
1-864-763- 11

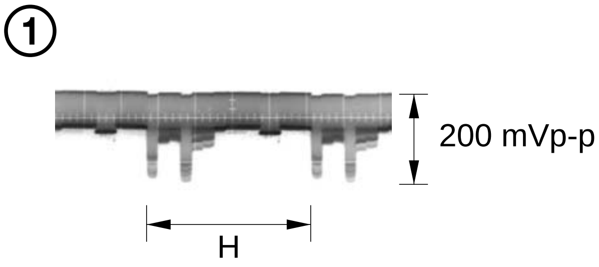
Note for Printed Wiring Board (See page 4-63).

LF : Uses unleaded solder.

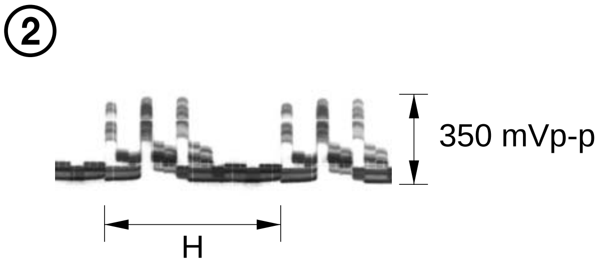

FP-826 FLEXIBLE BOARD
Q902
TAPE TOP
SENSOR
H901
S REEL
SENSOR
H902
T REEL
SENSOR
S903
(CC DOWN)
Q901
TAPE END
SENSOR
(REC PROOF)
4 PIN
CONNECTOR
MIC902
D901
(TAPE LED)
27
1
1
8
1-861-117-
12
22
S902
MODE SWITCH
M902
LOADING
MOTOR
M
FP-228
FLEXIBLE
BOARD
DEW
SENSOR
1-677-049-
11
1
8
FP-467 FLEXIBLE BOARD
1-686-798-
11

4-4. WAVEFORMS

CD-534 BOARD



IC203 ⑪ REC

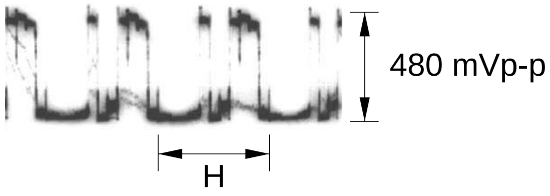


IC203 ⑤ REC

Waveforms of the VC-378 board are not shown.
Pages 4-82 to 4-87 are not shown.

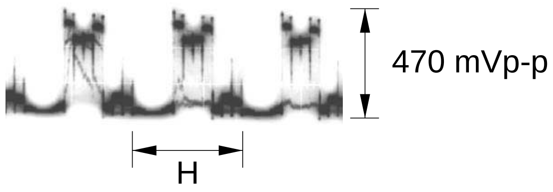
PD-238 BOARD

①



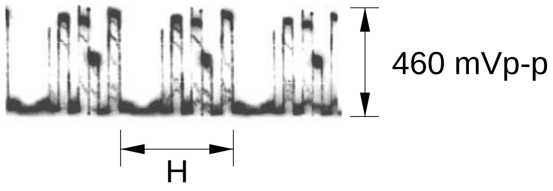
IC602 ㉞ REC/PB

②



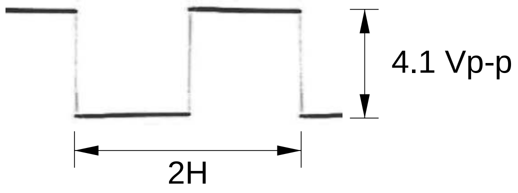
IC602 ㉝ REC/PB

③



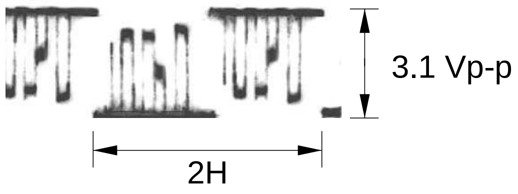
IC602 ㉜ REC/PB

④



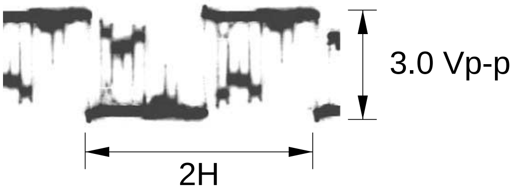
IC602 ㉖ REC/PB

⑤



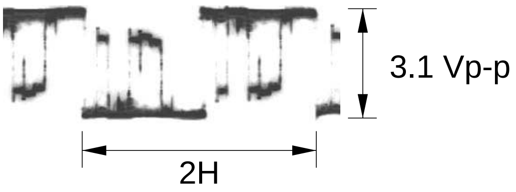
IC602 ㉒ REC/PB

⑥



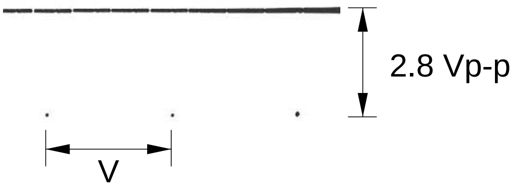
IC602 ㉑ REC/PB

⑦



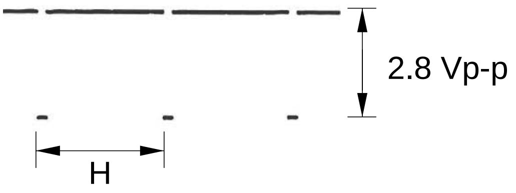
IC602 ⑳ REC/PB

⑧



IC602 ① REC/PB

⑨



IC602 ㊽ REC/PB

4-5. MOUNTED PARTS LOCATION

no mark : side A
⁎ mark : side B

CD-534 BOARD

* C202	B-2
* C204	B-2
* C206	A-1
* C207	B-1
* C208	B-1
* C209	B-1
* C211	A-1
* C214	A-1
* C215	A-1
* C217	B-2
* C218	B-2
* C219	B-2
* C220	A-2
* C221	A-1
* CN201	B-1
* FB201	A-1
* IC203	B-1
* L201	A-2
* L202	B-2
* Q201	A-2
* Q202	A-1
* R203	B-2
* R207	A-1
* R210	A-1
* R211	A-1
* R212	A-1
* R215	B-2

Mounted parts location of the VC-378 board are not shown.
Pages 4-90 and 4-91 are not shown.

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

PD-238 BOARD

C602	A-3
C603	C-3
C606	B-3
C608	A-1
C610	B-3
C611	C-2
C612	C-2
C614	C-3
C615	C-3
C616	C-3
C617	C-2
C618	B-4
C622	C-2
C623	C-2
C624	B-2
C625	B-4
C626	A-4
C627	A-4
C631	A-4
C633	A-1
CN601	C-5
CN602	A-2
CN603	A-3
CN605	A-4
CN608	C-1
CN609	B-4
D602	A-4
FB601	B-3
IC601	A-1
IC602	B-3
L601	C-3
L602	C-2
L603	B-4
Q601	A-3
Q602	A-3
Q606	B-1
Q607	B-1
Q608	B-4
Q609	B-4
Q610	A-4
Q611	B-1
Q613	B-1
R605	B-1
R606	B-2
R608	B-1
R609	B-3
R613	B-3
R614	C-3
R615	B-2
R616	B-1
R617	B-2
R619	B-2
R620	C-2
R623	B-2
R624	B-4
R625	B-4
R626	A-2
R627	A-2
R628	B-3
R634	A-4
R636	B-4
R637	A-4
R638	A-1
R639	A-2
R642	A-1
R643	A-1
R644	A-2
R645	A-2
RB601	B-2

SI-042 BOARD

C602	B-2
* C603	B-2
C608	C-2
C610	C-2
C611	C-2
C612	C-2
C613	C-2
C614	C-2
C615	C-2
C616	C-2
* C618	B-2
* C619	C-1
C621	C-1
* CN601	B-2
* CN603	C-2
D601	B-2
D602	C-2
* D604	C-2
* FB601	B-2
* FB602	B-1
* FB603	C-2
* FB604	C-1
IC601	B-2
IC602	C-2
* L601	B-2
* R601	C-2
R602	C-2
R603	C-2
R604	C-2
R605	C-2
R606	C-2
* R607	A-1
RB601	C-1
S601	A-1
* SE601	A-1
* SE602	B-1

JK-278 BOARD

* CN701	D-1
* CN704	B-1
* D705	D-1
* D706	D-1
* D707	D-1
* FB701	D-1
* FB702	D-1
* FB703	D-1
* J701	E-1
* R705	C-1
* R706	C-1
* R707	C-1
* R709	C-1

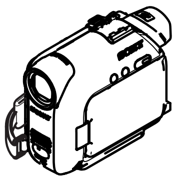
NOTE

5. REPAIR PARTS LIST

NOTE: Characters A to Z of the electrical parts list indicate location of exploded views in which the desired part is shown.

Link

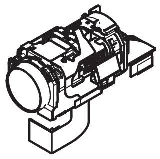
EXPLODED VIEWS


A

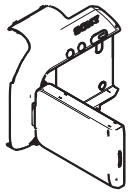
OVERALL ASSEMBLY

B

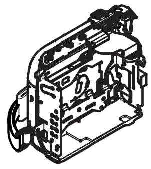
F PANEL BLOCK


C

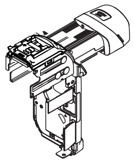
LENS BLOCK


D

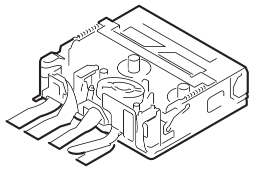
CABINET (R) BLOCK


E

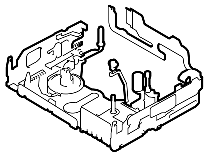
CS BLOCK


F

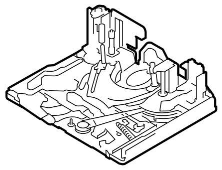
BAT EVF BLOCK


G

MECHANISM DECK


H

LS CHASSIS BLOCK ASSEMBLY


I

MECHANICAL CHASSIS BLOCK ASSEMBLY

Link

ELECTRICAL PARTS LIST

ACCESSORIES

CD-534 BOARD	C	FP-187 FLEXIBLE BOARD	D	LB-109 BOARD	F
CR-050 BOARD	D	FP-467 FLEXIBLE BOARD	I	MS-249 BOARD	E
FP-180 FLEXIBLE BOARD	F	FP-826 FLEXIBLE BOARD	H	PD-238 BOARD	D
FP-186 FLEXIBLE BOARD	D	JK-278 BOARD	E	SI-042 BOARD	B

5. REPAIR PARTS LIST

(ENGLISH)

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:
  uF: μF
- COILS
  uH: μH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

(JAPANESE)

【使用上の注意】

- ここに記載されている部品は，補修用部品であるため，回路図及びセットに付いている部品と異なる場合があります。
- −XX，−Xは標準化部品のため，セットに付いている部品と異なる場合があります。
- *印の部品は常備在庫しておりません。
- コンデンサの単位でuFはμFを示します。
- 抵抗の単位Ωは省略してあります。
  金　　被：金属被膜抵抗。
  サンキン：酸化金属被膜抵抗。
- インダクタの単位でuHはμHを示します。
- 半導体の名称でuA...，uPA...，uPB...，uPC...，uPD...等はそれぞれμA...，μPA...，μPB...，μPC...，μPD...を示します。

(ENGLISH)

When indicating parts by reference number, please include the board name.

(JAPANESE)

お願い

図面番号で部品を指定するときは基板名又はブロックを併せて指定して下さい。

(ENGLISH)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(JAPANESE)

⚠印の部品，または⚠印付きの点線で囲まれた部品は，安全性を維持するために重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

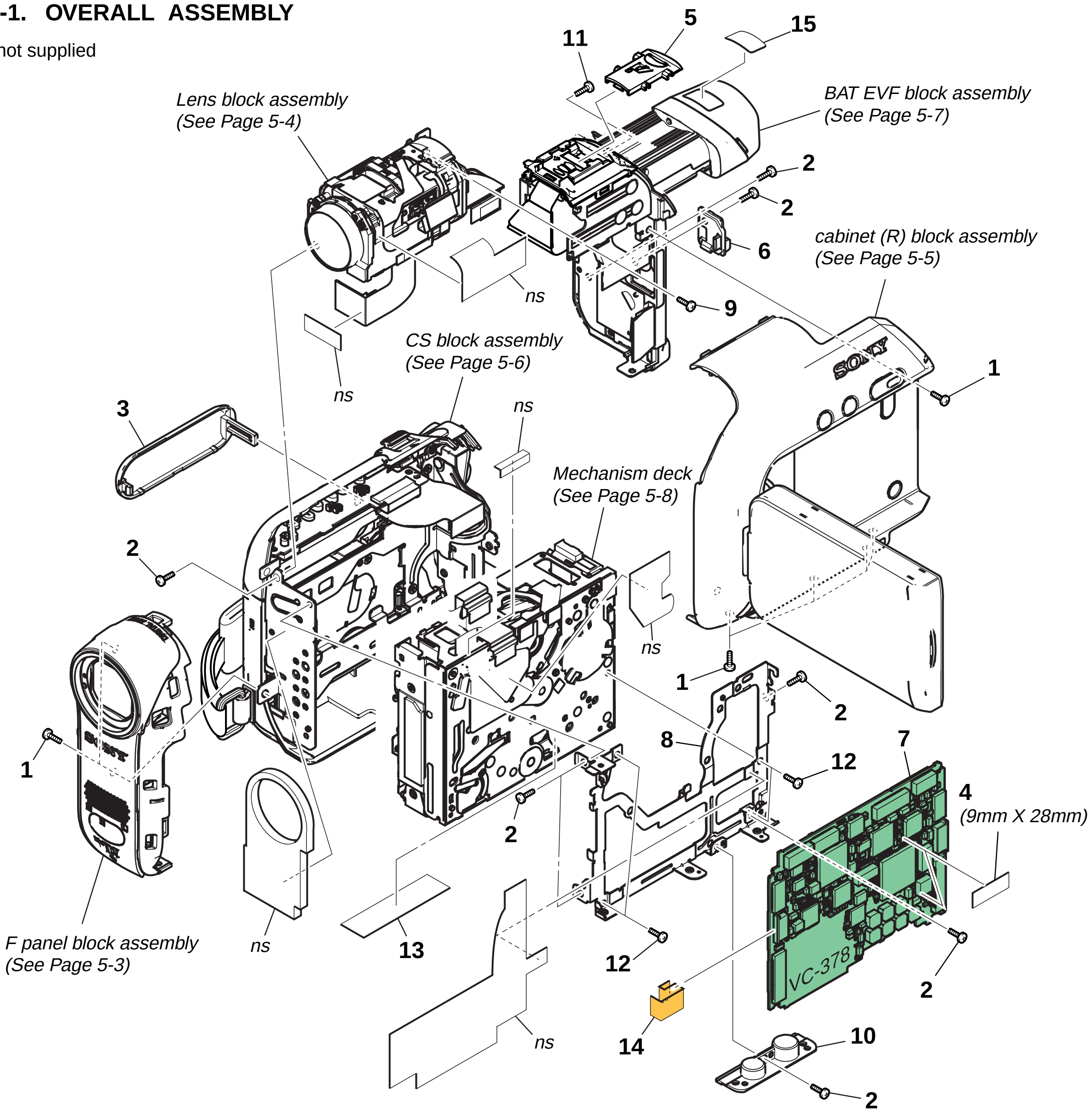
- Abbreviation
  AUS : Australian model
  BR : Brazilian model
  CH : Chinese model
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  J : Japanese model
  JE : Tourist model
  KR : Korea model
  NE : North European model

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

5-1-1. OVERALL ASSEMBLY

ns: not supplied


11
5
15
Lens block assembly
(See Page 5-4)
BAT EVF block assembly
(See Page 5-7)
2
2
6
cabinet (R) block assembly
(See Page 5-5)
ns
9
CS block assembly
(See Page 5-6)
ns
1
3
ns
Mechanism deck
(See Page 5-8)
2
ns
1
2
1
8
12
7
4
(9mm X 28mm)
2
VC-378
13
12
2
F panel block assembly
(See Page 5-3)
ns
ns
14
10
2

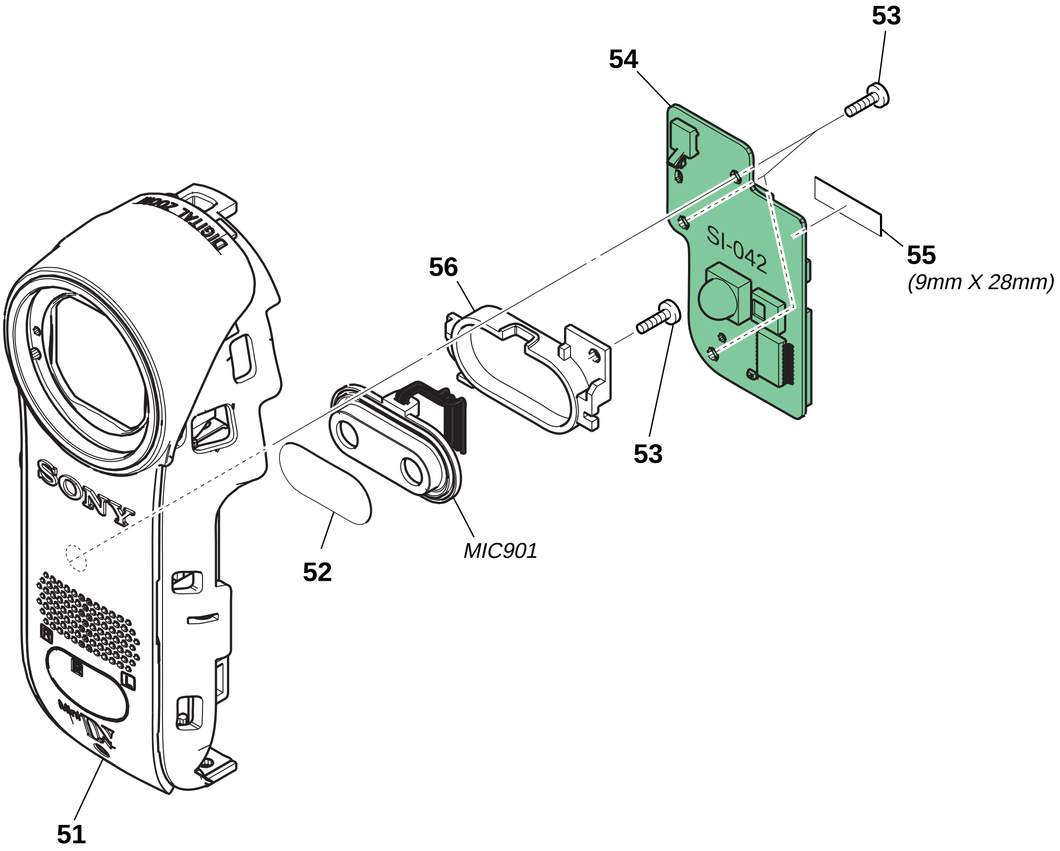
CAUTION:
4番のテープ(A)(3−080−272−01)は，T0.25ヒメロン(3−941−343−21)を切って使用。

CAUTION :
For the part of 4 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

Ref. No.	Part No.	Description
1	3-078-889-31	SCREW (M1.7)
2	3-080-198-11	SCREW (M1.7), LOCK ACE, P2
3	2-188-477-01	COVER, JACK
4	CAUTION	TAPE (A)
5	2-188-484-01	COVER (106), SHOE
6	2-188-478-01	LID, CPC
7	A-1101-191-A	VC-378 BOARD, COMPLETE (SERVICE) (HC39E)
7	A-1101-199-A	VC-378 BOARD, COMPLETE (SERVICE) (HC41/HC42/HC43)
7	A-1101-200-A	VC-378 BOARD, COMPLETE (SERVICE) (HC42E/HC43E)
8	X-2023-772-1	FRAME ASSY, MD
9	3-080-204-21	SCREW, TAPPING, P2
10	3-089-520-01	SCREW
11	3-080-198-31	SCREW (M1.7), LOCK ACE, P2
12	3-062-214-01	SCREW (M1.4X1.5)
13	3-081-221-01	LABEL (Z), LS
14	1-829-774-11	CABLE, FLEXIBLE FLAT (FFC-038)
15	3-089-544-01	LABEL, VF

5-1-2. F PANEL BLOCK

ns: not supplied



CAUTION:
55番のテープ(A)(3−080−272−01)は，T0.25ヒメロン(3−941−343−21)を切って使用。

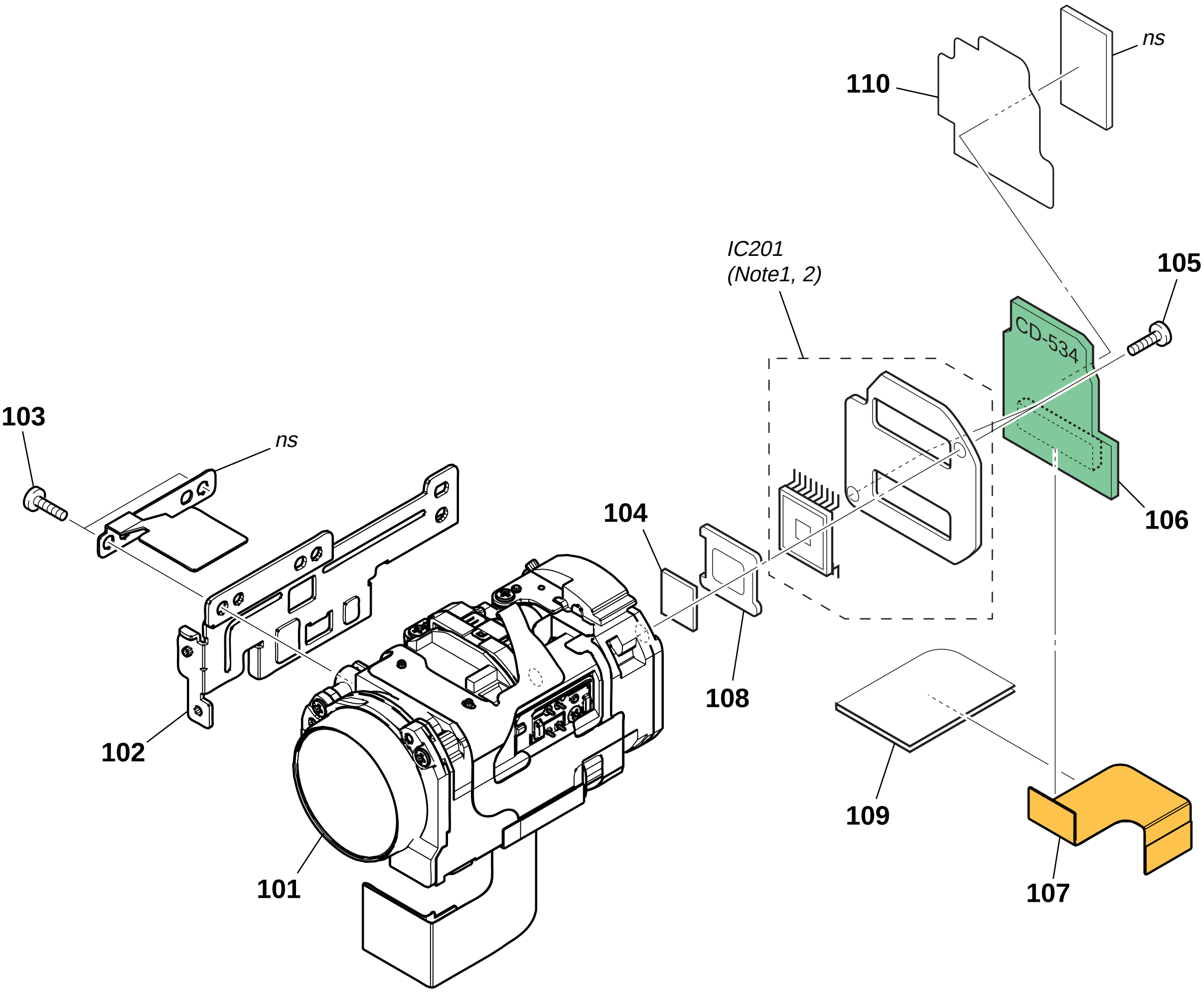
CAUTION :
For the part of 55 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

Ref. No.	Part No.	Description
51	X-2024-832-1	PANEL ASSY (480), FRONT (EXCEPT HC41)
51	X-2024-833-1	PANEL ASSY (150), FRONT (HC41)
52	3-089-771-01	CUSHION, MICROPHONE
53	3-078-890-11	SCREW, TAPPING
54	A-1081-844-A	SI-042 BOARD, COMPLETE
55	CAUTION	TAPE (A)
56	2-188-425-01	RETAINER, IR
MIC901	1-542-513-21	MICROPHONE

5. REPAIR PARTS LIST

5-1-3. LENS BLOCK

ns: not supplied



Note 1: IC201は，マウント済CD−534基板には含まれません。

Note 2: CCDイメージャの交換時は4−6ページの“CCDイメージャ交換時の注意”を必ずお読みください。

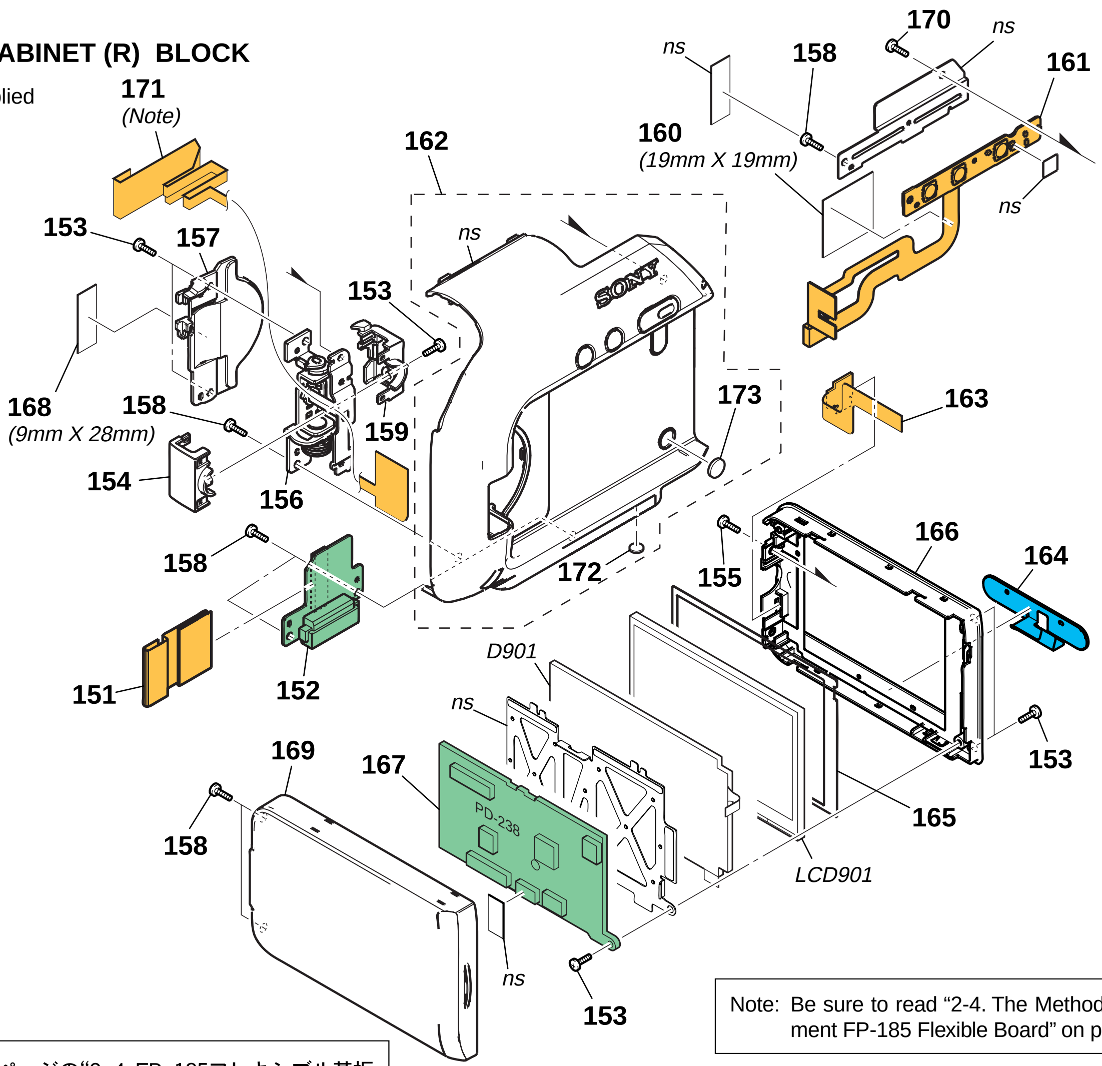
Note 1: IC201 is not included in CD-534 complete board.

Note 2: Be sure to read “Precuations for Replacement of CCD Imager” on page 4-5 when changing the CCD imager.

Ref. No.	Part No.	Description
101	8-848-790-01	DEVICE, LENS LSV-1080A
102	2-188-472-01	FRAME LENS
103	3-080-204-01	SCREW, TAPPING, P2
104	1-788-241-11	OPTICAL FILTER BLOCK
105	3-080-204-21	SCREW, TAPPING, P2
106	A-1081-699-A	CD-534 BOARD, COMPLETE
107	1-864-755-11	FP-179 FLEXIBLE BOARD
108	3-088-645-01	RUBBER (Z), SEAL
109	2-349-848-01	SHEET (CD), RADIATION
110	2-594-270-01	SHEET (G), CD COPPER LEAF
IC201	A-1103-137-A	CCD BLOCK ASSY (CCD IMAGER) (Note1, 2)

5-1-4. CABINET (R) BLOCK

ns: not supplied



Note: 2-8ページの"2-4. FP-185フレキシブル基板の取り付け方を必ずお読み下さい。

CAUTION 1:
160番のテープ(BT)(2-349-851-01)は，T0.25ヒメロン(3-076-631-01)を切って使用。

CAUTION 2:
168番のテープ(A)(3-080-272-01)は，T0.25ヒメロン(3-941-343-21)を切って使用。

Note: Be sure to read "2-4. The Method of Attachment FP-185 Flexible Board" on page 2-8.

CAUTION 1 :
For the part of 160 : TAPE (BT) (2-349-851-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

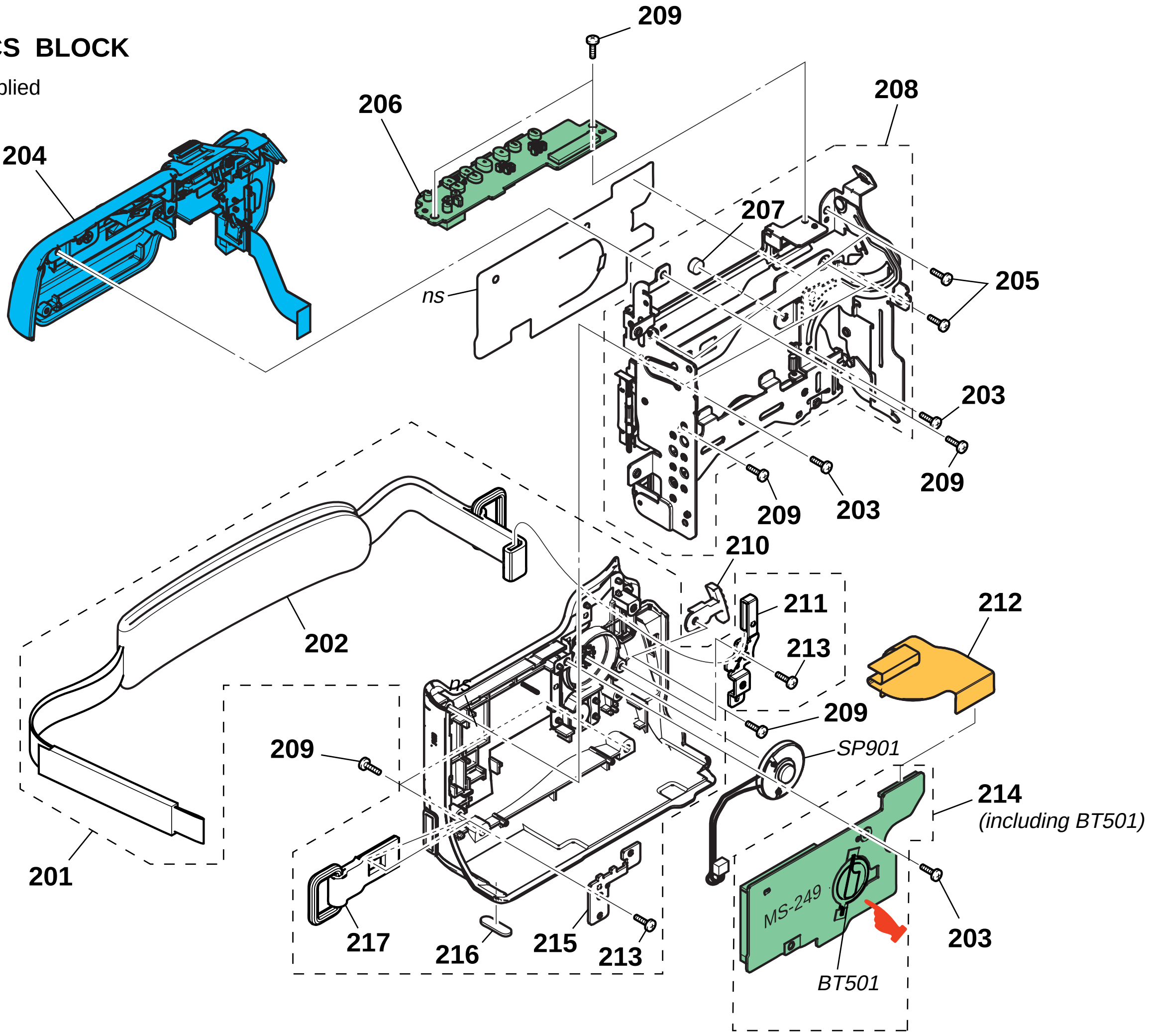
CAUTION 2 :
For the part of 168 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

Ref. No.	Part No.	Description
151	1-864-764-11	FP-190 FLEXIBLE BOARD
152	A-1081-704-A	CR-050 BOARD, COMPLETE
153	3-080-204-21	SCREW, TAPPING, P2
154	2-188-434-01	COVER (C), HINGE
155	3-078-889-21	SCREW (M1.7)
156	X-2023-771-1	HINGE (103) ASSY
157	2-188-476-01	BLIND, HINGE
158	3-078-890-11	SCREW, TAPPING
159	2-188-433-01	COVER (M), HINGE
160	CAUTION 1	TAPE (BT)
161	A-1082-203-A	FP-187 FLEXIBLE BOARD
162	X-2024-695-1	CABINET R ASSY (EXCEPT HC41)
162	X-2024-696-1	CABINET R ASSY (HC41)
163	A-1082-042-A	FP-186 FLEXIBLE BOARD
164	1-478-984-11	KEY BLOCK, CONTROL (SB10600)
165	2-188-437-01	CUSHION (106), PANEL
166	X-2024-704-1	CABINET (M) (106) ASSY, P (EXCEPT HC41)
166	X-2024-705-1	CABINET (M) (106) ASSY, P (HC41)
167	A-1081-853-A	PD-238 BOARD, COMPLETE
168	CAUTION 2	TAPE (A)
169	2-349-514-01	CABINET (C (106)), P (HC42)
169	2-349-514-11	CABINET (C (106)), P (HC42E)
169	2-349-514-21	CABINET (C (106)), P (HC43)
169	2-349-514-31	CABINET (C (106)), P (HC43E)
169	2-349-514-41	CABINET (C (106)), P (HC39E)
169	2-349-514-51	CABINET (C (106)), P (HC41)
170	3-085-397-01	SCREW
171	1-864-761-11	FP-185 FLEXIBLE BOARD
172	2-593-937-01	FOOT (RR), RUBBER
173	3-089-565-01	CUSHION (R), PANEL
D901	1-478-990-11	BLOCK, LIGHT GUIDE PLATE (2.7)
LCD901	A-1083-763-A	TP BLOCK ASSY 27STGU

5. REPAIR PARTS LIST

5-1-5. CS BLOCK

ns: not supplied



BT501(BATTERY, LITHIUM SECONDARY)
Board on the mount position (See page 4-76).

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

⚠印の部品，または⚠印付きの点線で囲まれた部品は，
安全性を維持するために重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

注意
電池の交換は，正しく行わないと破裂する恐れがあります。電池を交換する場合には必ず同じ型名の電池又は同等品と交換してください。

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

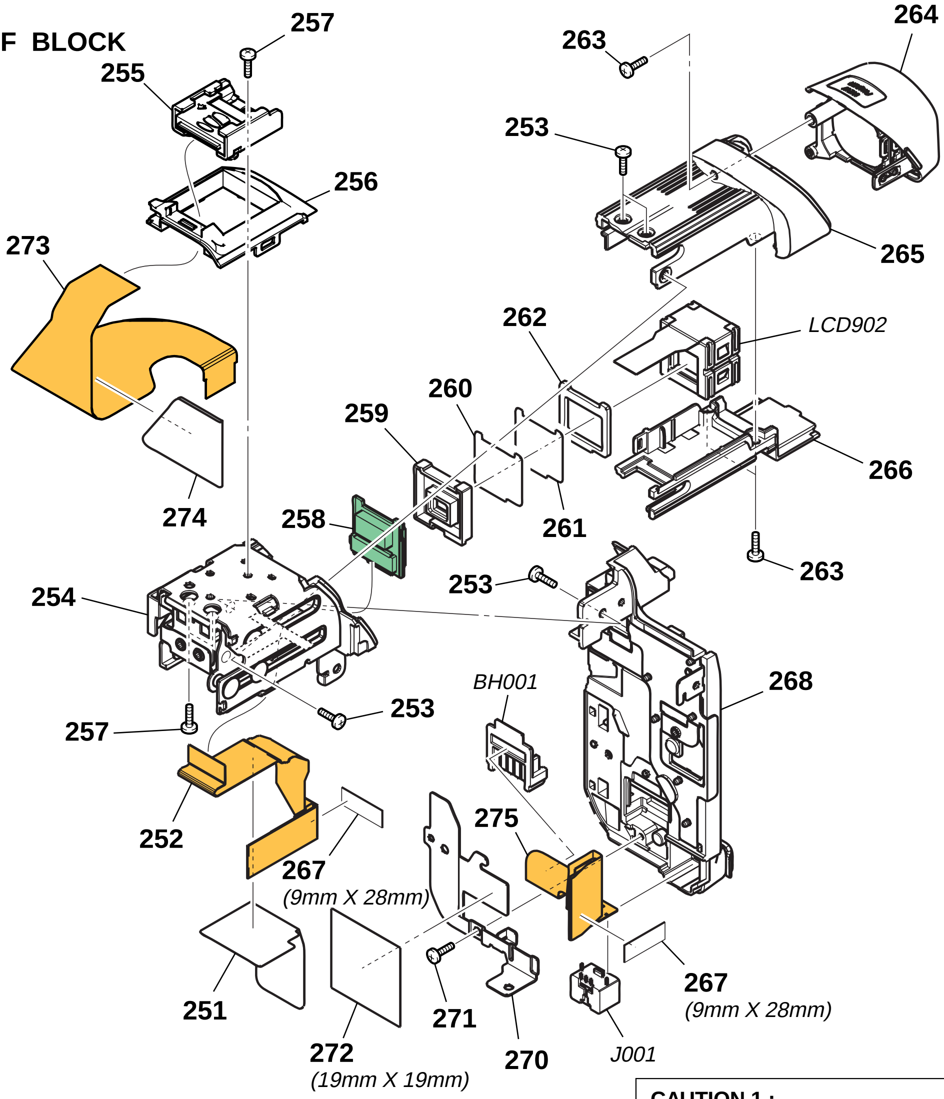
Ref. No.	Part No.	Description
201	X-2024-840-1	CABINET (G) ASSY (EXCEPT HC41)
201	X-2024-841-1	CABINET (G) ASSY (HC41)
202	2-583-631-01	BELT, GRIP
203	3-078-890-11	SCREW, TAPPING
204	1-478-982-51	KEY BLOCK, CONTROL (SS10300) (HC39E)
204	1-478-982-61	KEY BLOCK, CONTROL (SS10300) (HC42/HC42E/HC43/HC43E)
204	1-478-982-71	KEY BLOCK, CONTROL (SS10300) (HC41)
205	3-080-204-01	SCREW, TAPPING, P2
206	A-1081-841-A	JK-278 BOARD, COMPLETE
207	3-959-978-02	CUSHION, PANEL
208	X-2023-773-1	FRAME ASSY, CS

Ref. No.	Part No.	Description
209	3-080-198-11	SCREW (M1.7), LOCK ACE, P2
210	2-188-450-01	KNOB, EJECT
211	2-188-455-01	SHEET METAL (REAR), GRIP BELT
212	1-864-758-11	FP-182 FLEXIBLE BOARD
213	3-080-204-11	SCREW, TAPPING, P2
214	A-1081-843-A	MS-249 BOARD, COMPLETE
215	2-188-453-01	SHEET METAL (FRONT), GRIP BELT
216	2-188-514-01	FOOT (G), RUBBER
217	2-583-616-01	BELT (FRONT), GRIP
⚠BT501	1-756-075-21	BATTERY, LITHIUM (SECONDARY)
SP901	1-825-260-23	LOUD SPEAKER (1.6cm)

5. REPAIR PARTS LIST

5-1-6. BAT EVF BLOCK

ns: not supplied



CAUTION 1:
267番のテープ(A)(3−080−272−01)は，T0.25ヒメロン(3−941−343−21)を切って使用。

CAUTION 2:
272番のテープ(BT)(2−349−851−01)は，T0.25ヒメロン(3−076−631−01)を切って使用。

CAUTION 1 :
For the part of 267 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

CAUTION 2 :
For the part of 272 : TAPE (BT) (2-349-851-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

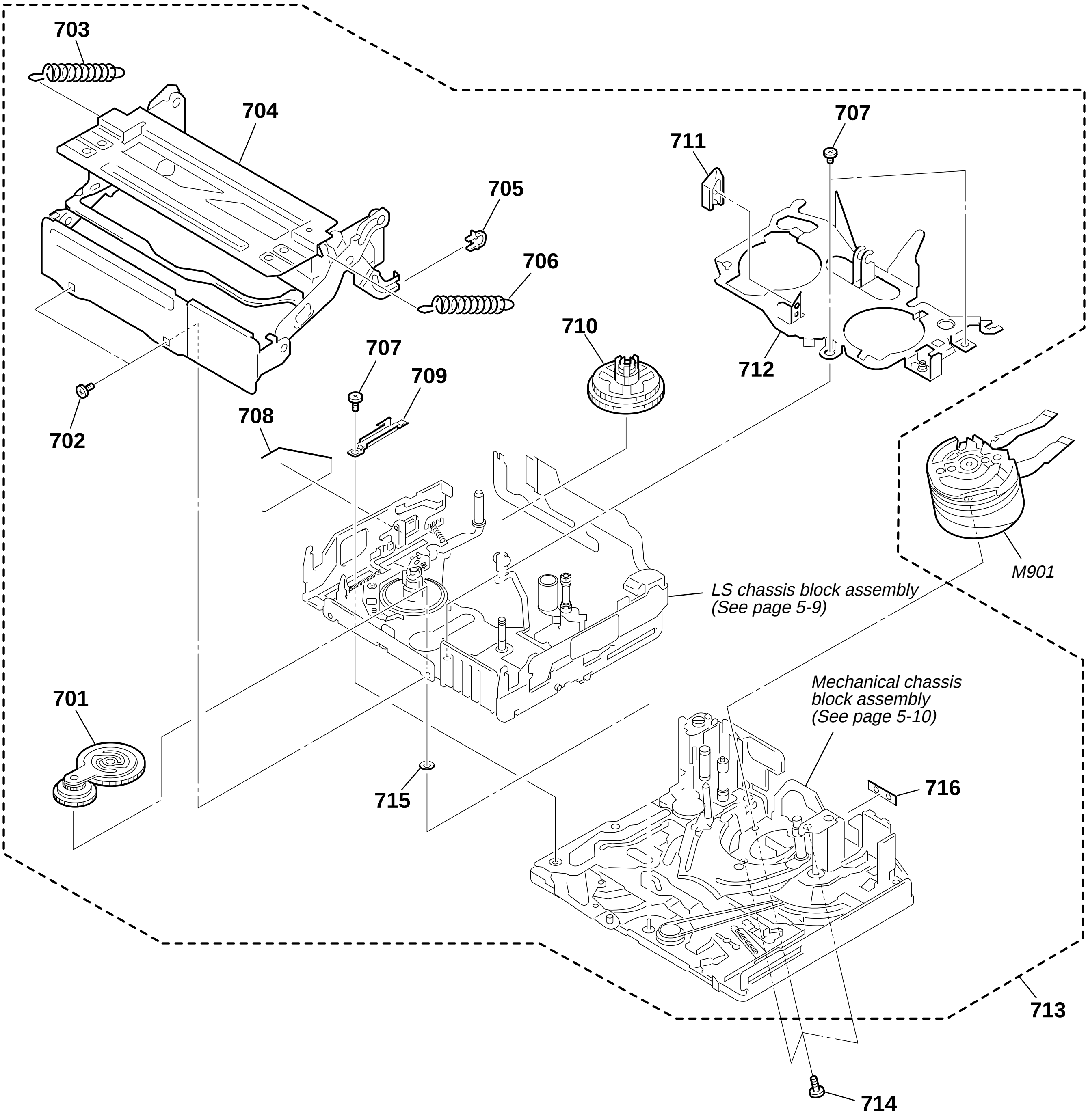
Ref. No.	Part No.	Description
251	2-188-512-01	SHEET, VF FLEXIBLE FIXED
252	1-864-757-11	FP-181 FLEXIBLE BOARD
253	3-078-889-21	SCREW (M1.7)
254	X-2023-650-1	VF SLIDE ASSY
255	1-818-890-11	CONNECTOR, EXTERNAL (HOT SHOE)
256	2-188-483-01	BASE (106), SHOE
257	3-080-198-11	SCREW (M1.7), LOCK ACE, P2
258	A-1081-845-A	LB-109 BOARD, COMPLETE (HC39E)
258	A-1081-846-A	LB-109 BOARD, COMPLETE (EXCEPT HC39E)
259	3-089-415-01	GUIDE, LAMP
260	3-089-417-01	ILLUMINATOR
261	3-089-416-01	SHEET, PRISM
262	3-089-419-01	CUSHION, LCD
263	3-080-204-21	SCREW, TAPPING, P2
264	X-2023-648-1	EYE CUP ASSY
265	X-2023-647-1	CABINET UPPER ASSY VF

Ref. No.	Part No.	Description
266	2-188-511-01	CABINET LOWER, VF
267	CAUTION 1	TAPE (A)
268	X-2048-505-1	PANEL ASSY, BT (EXCEPT HC43)
268	X-2048-506-1	PANEL ASSY, BT (HC43)
270	2-188-500-01	PLATE, BT TERMINAL RETAINER
271	3-080-204-01	SCREW, TAPPING, P2
272	CAUTION 2	TAPE (BT)
273	1-864-760-11	FP-184 BOARD
274	2-349-849-01	SHEET (SHOE), RADIATION
275	1-864-756-11	FP-180 FLEXIBLE BOARD
BH001	1-780-064-21	BATTERY TERMINAL BOARD
J001	1-815-792-11	CONNECTOR, DC-IN (7.2V) (DC IN)
LCD902	8-753-208-78	LCX059AKA-J (HC41/HC42/HC42E/HC43/HC43E: E)
LCD902	8-753-208-84	LCX059ALA-1 (HC39E)
LCD902	8-753-234-59	LCX059ZKA-1 (HC43E: CH)

5. REPAIR PARTS LIST

5-1-7. MECHANISM DECK

ns: not supplied

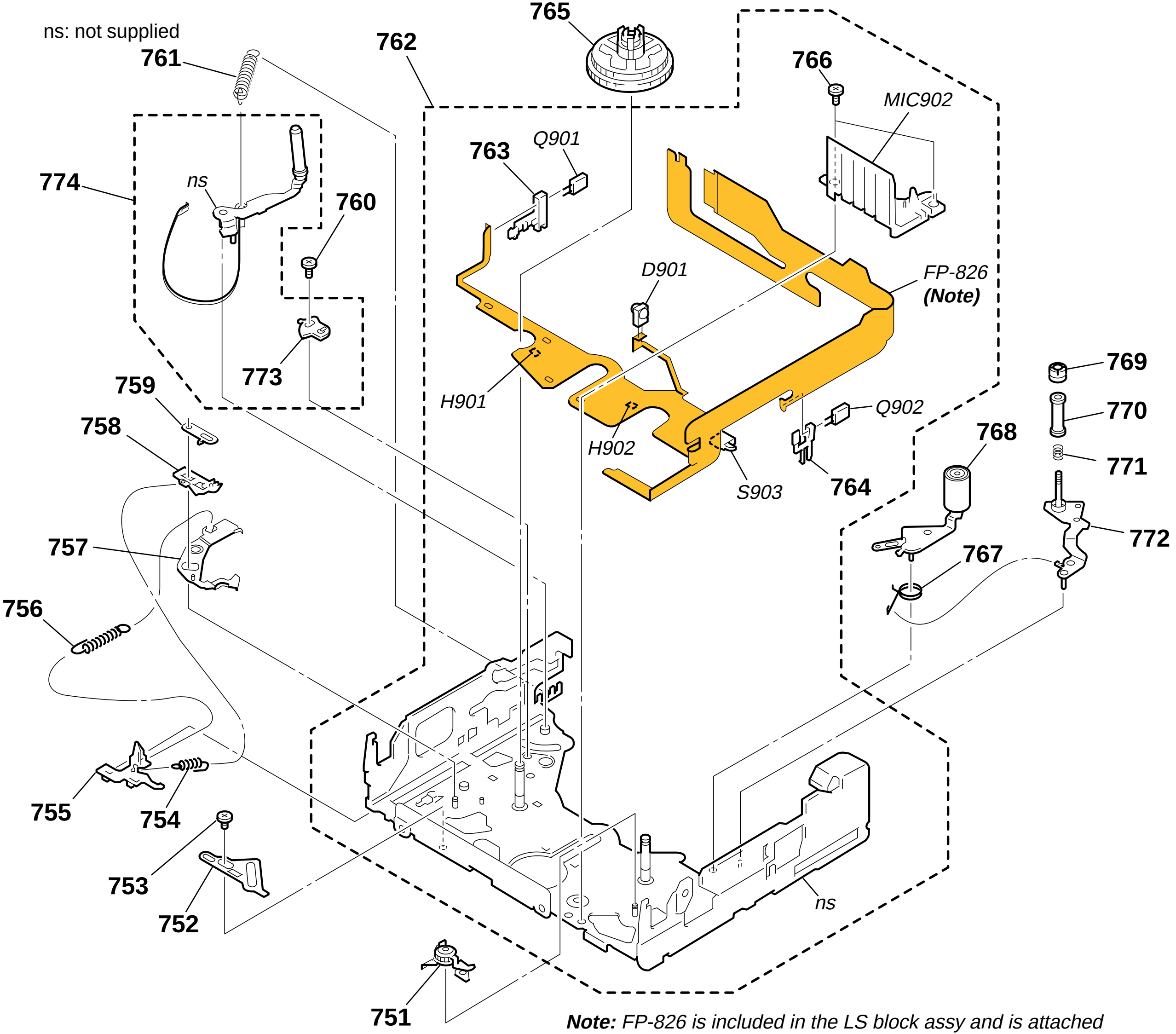

703
704
707
711
705
706
710
712
707
709
708
702
M901
LS chassis block assembly
(See page 5-9)
701
Mechanical chassis
block assembly
(See page 5-10)
716
715
713
714

Ref. No.	Part No.	Description
701	X-3952-938-6	GEAR ASSY, GOOSENECK
702	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
703	3-079-206-02	SPRING (POP UP S), TXTENSION
704	X-2024-802-1	COMPARTMENT ASSY, CASSETTE
705	3-079-367-01	DAMPER, CASSETTE COMPARTMENT
706	3-079-215-02	SPRING (POP UP T), EXTENSION
707	3-085-330-01	SCREW, SPECIAL
708	3-080-545-01	COVER, SENSOR S
709	3-079-364-01	RETAINER, LS GUIDE

Ref. No.	Part No.	Description
710	X-3952-937-1	TABLE ASSY, T REEL
711	3-079-366-01	RELEASE, REEL LOCK
712	X-3953-257-1	PLATE ASSY, RETAINER
713	A-1082-424-A	MD (Z210) SUB ASSY
714	3-079-741-02	SCREW, DRUM FIXING
715	3-748-682-01	WASHER, T
716	3-087-881-01	SHEET, ADHESIVE, FLEXIBLE
M901	A-7048-994-A	DRUM (DEH-30B-R) (SERVICE)

5-1-8. LS CHASSIS BLOCK ASSEMBLY

ns: not supplied

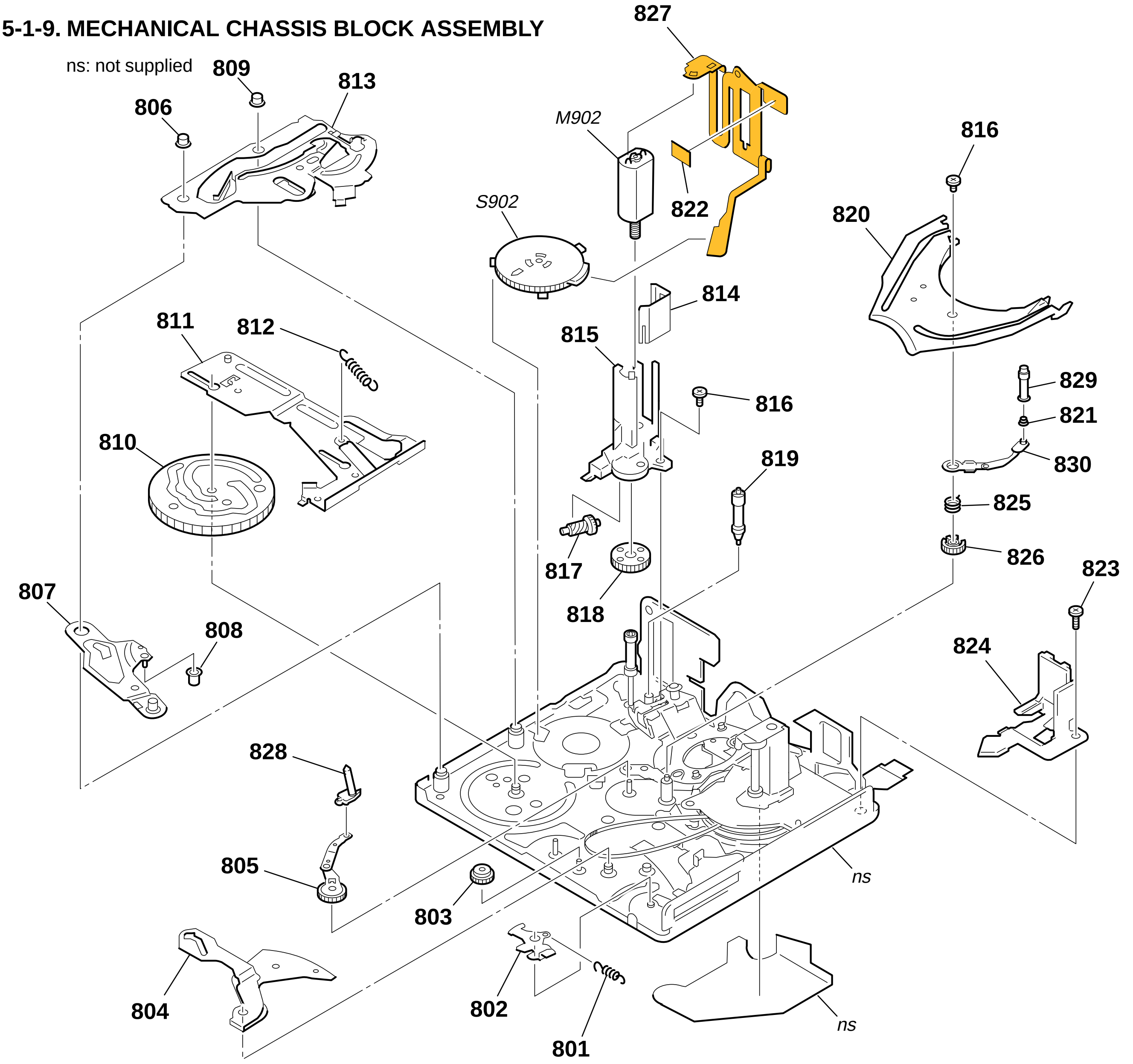


Note: *FP-826 is included in the LS block assy and is attached to chassis by hot-press.*
Because installation of FP-826 requires a very high accuracy, FP-826 is not supplied as an independent service parts.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
751	A-7095-402-B	BRAKE (T) BLOCK ASSY (S)	767	3-079-243-02	SPRING (PINCH RETURN), TORSION
752	3-079-241-01	PLATE, LS CAM	768	X-3952-934-1	ARM ASSY, PINCH
753	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD	769	3-052-062-02	NUT, TG7
754	3-079-246-01	SPRING (RELEASE RACK), EXTENSION	770	3-079-219-02	TG7
755	3-079-248-01	POSITIONING (S), CASSETTE	771	3-081-591-01	SPRING, COMPRESSION (TG7)
756	3-079-244-01	SPRING (ULE), EXTENSION	772	X-3952-935-3	ARM ASSY, TG7
757	X-3952-932-1	BRAKE ASSY, ULE	773	3-079-237-01	ADJUSTOR, BAND
758	3-079-245-01	RACK (S), RELEASE	774	A-7095-403-B	TG2 ARM BLOCK ASSY
759	3-079-247-01	BRAKE (S)	D901	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
760	3-059-090-11	SCREW (M1.4X2.5), SPECIAL HEAD	H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
761	3-079-242-01	SPRING, TENSION	H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
762	A-7095-951-A	LS BLOCK ASSY	MIC902	1-817-175-12	PIN, CONNECTOR (WITH DETECTION SWITCH)
763	3-079-267-01	HOLDER (S), SENSOR	Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
764	3-079-268-01	HOLDER (T), SENSOR	Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
765	X-3952-936-2	TABLE ASSY, S REEL	S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C. DOWN)
766	3-085-330-01	SCREW, SPECIAL			

5-1-9. MECHANICAL CHASSIS BLOCK ASSEMBLY

ns: not supplied



Ref. No.	Part No.	Description
801	3-079-314-01	SPRING (EJ), EXTENSION
802	3-079-327-01	ARM, EJ
803	3-079-323-01	GEAR, CONVERSION
804	3-079-324-01	ARM, GL DRIVING
805	X-3952-928-1	GL (S) ASSY
806	3-079-315-01	ROLLER (S1), LS GUIDE
807	X-3952-925-1	ARM ASSY, LS
808	3-079-320-01	ROLLER, LS
809	3-079-316-01	ROLLER (S2), LS GUIDE
810	3-079-319-01	GEAR, CAM
811	X-3954-274-2	SLIDER ASSY (N), M
812	3-079-321-02	SPRING (PINCH), EXTENSION
813	X-3954-273-2	PLATE ASSY (N), TG2 CAM
814	3-079-312-01	SHIELD, MOTOR
815	3-079-307-02	HOLDER, MOTOR
816	3-085-330-01	SCREW, SPECIAL

Ref. No.	Part No.	Description
817	3-079-308-01	SHAFT, WORM
818	3-079-309-01	GEAR, DECELERATION
819	X-3952-942-2	ROLLER ASSY, TG3
820	3-079-325-01	RAIL, GUIDE
821	3-079-295-02	SPRING, TG5
822	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
823	3-079-328-01	SCREW (M1.4), SPECIAL HEAD
824	3-079-326-02	SUPPORT, TG7
825	3-079-301-01	SPRING (GLT), TORSION
826	3-079-298-01	GEAR (T), GL
827	1-686-798-11	FP-467 FLEXIBLE BOARD
828	X-3952-927-2	COASTER (S) ASSY
829	X-3952-930-3	ROLLER ASSY, TG5
830	X-3952-929-1	COASTER (T) ASSY
M902	A-7095-396-A	MOTOR BLOCK ASSY, L (LOARDING)
S902	1-477-679-11	ROTARY, ENCODER (SWITCH) (MODE SWITCH)

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description			
	A-1081-699-A	CD-534 BOARD, COMPLETE			
		************************			
		(IC201 is not included in this complete board.)			
		< CAPACITOR >			
C202	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C204	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C207	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C209	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C211	1-127-820-11	CERAMIC CHIP	4.7uF	10%	16V
C214	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C215	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C217	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C218	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C219	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C220	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C221	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN201	1-784-423-21	CONNECTOR, FFC/FPC (ZIF) 39P			
		< FERRITE BEAD >			
FB201	1-414-760-21	FERRITE, EMI (SMD) (1608)			
		< IC >			
IC201	A-1103-137-A	CCD BLOCK ASSY (CCD IMAGER) (Note)			
IC203	6-701-755-01	IC AD80017AJRURL			
		< COIL >			
L201	1-469-528-91	INDUCTOR	100uH		
L202	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
		< TRANSISTOR >			
Q201	6-550-234-01	TRANSISTOR	UNR32A300LS0		
Q202	8-729-055-21	TRANSISTOR	2SC5096-O/R (TE85L)		
		< RESISTOR >			
R203	1-218-990-11	SHORT CHIP	0		
R207	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R210	1-218-965-11	RES-CHIP	10K	5%	1/16W
R211	1-218-953-11	RES-CHIP	1K	5%	1/16W
R212	1-218-966-11	RES-CHIP	12K	5%	1/16W
R215	1-218-990-11	SHORT CHIP	0		
	A-1081-704-A	CR-050 BOARD, COMPLETE			
		************************			
		< CONNECTOR >			
CN001	1-817-283-41	CONNECTOR, FPC (ZIF) 51P			
CN002	(Not supplied)	CONNECTOR, MULTIPLE (SOCKET)			
		< DIODE >			
D001	6-500-044-01	DIODE DF6A6.8FU (TE85R)			
D002	6-500-044-01	DIODE DF6A6.8FU (TE85R)			
D003	6-500-044-01	DIODE DF6A6.8FU (TE85R)			
D005	6-500-044-01	DIODE DF6A6.8FU (TE85R)			
D006	6-500-776-01	DIODE MAZW068H0LS0			
D007	8-719-083-91	DIODE EDZ TE61 6.8B			
	1-864-756-11	FP-180 FLEXIBLE BOARD			
		********************			
		(BH001 and J001 are not included in this flexible board.)			
		< BATTERY TERMINAL >			
BH001	1-780-064-21	BATTERY TERMINAL BOARD			
		< JACK >			
J001	1-815-792-11	CONNECTOR, DC-IN (7.2V) (DC IN)			
	A-1082-042-A	FP-186 FLEXIBLE BOARD, COMPLETE			
		********************************			
		< SWITCH >			
S101	1-786-179-31	SWITCH, PUSH (1KEY) (PANEL REVERSE)			
	A-1082-203-A	FP-187 FLEXIBLE BOARD, COMPLETE			
		********************************			
		< DIODE >			
D001	6-501-052-01	DIODE CL-197HB1-D-T (EASY)			
D002	6-500-776-01	DIODE MAZW068H0LS0			
D003	6-500-776-01	DIODE MAZW068H0LS0			
D004	8-719-060-92	DIODE SML-311YTT86 (CHG)			
		< RESISTOR >			
R001	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R002	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R003	1-216-817-11	METAL CHIP	470	5%	1/10W
R004	1-216-805-11	METAL CHIP	47	5%	1/10W
		< SWITCH >			
S001	1-771-138-82	SWITCH, KEY BOARD (DSPL/BATT INFO)			
S002	1-771-138-82	SWITCH, KEY BOARD (EASY)			
S003	1-771-138-82	SWITCH, KEY BOARD (BACK LIGHT)			
S004	1-786-180-31	SWITCH, PUSH (1KEY) (PANEL OPEN/CLOSE)			

Note: Be sure to read “Precautions for Replacement of CCD Imager” on page 4-5 when changing the CCD imager.

Note: CCDイメージャの交換時は4−6ページの“CCDイメージャ交換時の注意”を必ずお読みください。

FP-467 **FP-826** **JK-278** **LB-109** **MS-249**

Ref. No.	Part No.	Description
	1-686-798-11	FP-467 FLEXIBLE BOARD
		********************
		(S902 is not included in this flexible board.)
		< SWITCH >
S902	1-477-679-11	ROTARY, ENCODER (SWITCH) (MODE SWITCH)
	(Not supplied)	FP-826 FLEXIBLE BOARD
		********************
		(This flexible board is included in LS BLOCK ASSY (A-7095-951-A).)
		< DIODE >
D901	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
		< HOLL ELEMENT >
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
		< CONNECTOR >
MIC902	1-817-175-12	PIN, CONNECTOR (WITH DELCTION SWITCH)
		< TRANSISTOR >
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
		< SWITCH >
S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C. DOWN)
	A-1081-841-A	JK-278 BOARD, COMPLETE
		**********************
		< CONNECTOR >
CN701	1-815-794-21	CONNECTOR (MULTIPLE) (AV OUT: HC39E) (AV: EXCEPT HC39E)
CN704	1-818-087-31	CONNECTOR, FFC/FPC (LIF) 26P
		< DIODE >
D705	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D706	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D707	6-500-044-01	DIODE DF6A6.8FU (TE85R)
		< FERRITE BEAD >
FB701	1-400-823-11	EMI FERRITE (SMD) (1005)
FB702	1-400-823-11	EMI FERRITE (SMD) (1005)
FB703	1-400-823-11	EMI FERRITE (SMD) (1005)
		< JACK >
J701	1-793-995-11	JACK, SUPER SMALL TYPE (LANC)

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
		< RESISTOR >
R705	1-218-990-11	SHORT CHIP 0
R706	1-218-990-11	SHORT CHIP 0
R707	1-218-990-11	SHORT CHIP 0
R709	1-218-990-11	SHORT CHIP 0
	A-1081-845-A	LB-109 BOARD, COMPLETE (HC39E)
	A-1081-846-A	LB-109 BOARD, COMPLETE (EXCEPT HC39E)
		**********************
		< CAPACITOR >
C301	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C302	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C303	1-164-505-11	CERAMIC CHIP 2.2uF 16V
		< CONNECTOR >
CN301	1-818-046-11	FFC/CONNECTOR, FPC (LIF (NON-ZIF)) 20P
CN302	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P
		< DIODE >
D302	6-500-941-01	DIODE MAZS056008S0
D303	6-500-874-01	DIODE E1S35-AW0C7-01-A2 (BACKLIGHT) (HC39E)
D303	8-719-082-33	DIODE NSCW100-T38 (BACKLIGHT) (EXCEPT HC39E)
		< RESISTOR >
R302	1-216-841-11	METAL CHIP 47K 5% 1/10W
R303	1-218-971-11	RES-CHIP 33K 5% 1/16W
R304	1-218-975-11	RES-CHIP 68K 5% 1/16W
R305	1-218-989-11	RES-CHIP 1M 5% 1/16W
	A-1081-843-A	MS-249 BOARD, COMPLETE
		***********************
		< BATTERY >
⚠BT501	1-756-075-21	BATTERY, LITHIUM (SECONDARY)
		< CONNECTOR >
* CN501	1-691-378-21	CONNECTOR, FFC/FPC 14P
CN502	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P
CN503	1-817-913-41	MEMORY STICK DUO CONNECTOR
		< DIODE >
D501	6-500-817-01	DIODE SML-512UWT86 (MS ACCESS)
D503	6-500-776-01	DIODE MAZW068H0LS0
		< RESISTOR >
R501	1-218-949-11	RES-CHIP 470 5% 1/16W
		< SWITCH >
S501	1-771-138-82	SWITCH, KEY BOARD (RESET)

注意
電池の交換は，正しく行わないと破裂する恐れがあります。電池を交換する場合には必ず同じ型名の電池又は同等品と交換してください。

⚠印の部品，または⚠印付きの点線で囲まれた部品は，安全性を維持するために重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

Ref. No.	Part No.	Description			
	A-1081-853-A	PD-238 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C602	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C603	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C606	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C611	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C612	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C614	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C615	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C616	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C617	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C618	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C622	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C623	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C624	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C625	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C626	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C627	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C631	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C633	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
		< CONNECTOR >			
CN601	1-815-031-11	FFC/CONNECTOR, FPC (ZIF) 24P			
CN602	1-691-370-11	CONNECTOR, FFC/FPC 6P			
CN603	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P			
CN605	1-815-031-11	FFC/CONNECTOR, FPC (ZIF) 24P			
CN608	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P			
CN609	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P			
		< DIODE >			
D602	6-500-941-01	DIODE MAZS056008S0			
		< FERRITE BEAD >			
FB601	1-400-461-21	FERRITE, EMI (SMD) (1005)			
		< IC >			
IC601	8-759-693-13	IC NJM12904V (TE2)			
IC602	8-753-229-98	IC CXM3006CR-T4			
		< COIL >			
L601	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
L602	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
L603	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
		< TRANSISTOR >			
Q601	8-729-427-52	TRANSISTOR	XP4216		
Q602	8-729-427-23	TRANSISTOR	XP4116-TXE		
Q606	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q607	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q608	6-550-234-01	TRANSISTOR	UNR32A300LS0		
Q609	8-729-041-23	TRANSISTOR	NDS356AP		
Q610	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q611	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q613	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR (TPLR3)		
		< RESISTOR >			
R605	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R606	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R608	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R609	1-218-975-11	RES-CHIP	68K	5%	1/16W
R613	1-208-934-11	METAL CHIP	91K	0.5%	1/16W
R614	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R615	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R616	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R617	1-218-953-11	RES-CHIP	1K	5%	1/16W
R619	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R620	1-218-965-11	RES-CHIP	10K	5%	1/16W
R623	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R624	1-218-977-11	RES-CHIP	100K	5%	1/16W
R625	1-218-990-11	SHORT CHIP	0		
R626	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R627	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R628	1-218-949-11	RES-CHIP	470	5%	1/16W
R634	1-218-989-11	RES-CHIP	1M	5%	1/16W
R636	1-218-990-11	SHORT CHIP	0		
R637	1-218-978-11	RES-CHIP	120K	5%	1/16W
R638	1-216-864-11	SHORT CHIP	0		
R639	1-216-864-11	SHORT CHIP	0		
R642	1-218-973-11	RES-CHIP	47K	5%	1/16W
R643	1-218-973-11	RES-CHIP	47K	5%	1/16W
R644	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R645	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB601	1-234-369-21	RES, NETWORK	10 (1005X4)		

Ref. No.	Part No.	Description			
	A-1081-844-A	SI-042 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C602	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C603	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C608	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C610	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C611	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C612	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C613	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C614	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C615	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C616	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C618	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C619	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C621	1-100-252-11	CERAMIC CHIP	0.1uF	10%	6.3V
		< CONNECTOR >			
CN601	1-778-507-21	PIN, CONNECTOR (PC BOARD) 4P			
CN603	1-766-348-21	CONNECTOR, FFC/FPC 18P			

SI-042

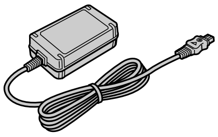
Ref. No.	Part No.	Description			
		< DIODE >			
D601	6-500-512-01	DIODE CL-330IRS-X-TU (IR EMITTER/NIGHTSHOT)			
D602	6-500-817-01	DIODE SML-512UWT86 (CAMERA RECORDING)			
D604	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB601	1-469-179-21	INDUCTOR, FERRITE BEAD			
FB602	1-469-179-21	INDUCTOR, FERRITE BEAD			
FB603	1-469-179-21	INDUCTOR, FERRITE BEAD			
FB604	1-469-179-21	INDUCTOR, FERRITE BEAD			
		< IC >			
IC601	6-600-163-01	IC RS-770			
IC602	8-759-489-19	IC uPC6756GR-8JG-E2			
		< COIL >			
L601	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH			
		< RESISTOR >			
R601	1-218-949-11	RES-CHIP	470	5%	1/16W
R602	1-218-989-11	RES-CHIP	1M	5%	1/16W
R603	1-218-965-11	RES-CHIP	10K	5%	1/16W
R604	1-218-937-11	RES-CHIP	47	5%	1/16W
R605	1-218-965-11	RES-CHIP	10K	5%	1/16W
R606	1-218-989-11	RES-CHIP	1M	5%	1/16W
R607	1-216-821-11	METAL CHIP	1K	5%	1/10W
		< COMPOSITION CIRCUIT BLOCK >			
RB601	1-234-379-21	RES, NETWORK 22K (1005X4)			
		< SWITCH >			
S601	1-786-148-11	SWITCH, PUSH (1 KEY) (LENS COVER OPEN)			
		< SENSOR >			
SE601	1-476-807-41	SENSOR, ANGULAR VELOCITY (PITCH SENSOR)			
SE602	1-476-807-31	SENSOR, ANGULAR VELOCITY (YAW SENSOR)			

Electrical parts list of the VC-378 board is not shown.
Pages 5-15 to 5-22 are not shown.

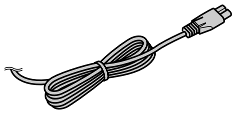
• E MODEL

Checking supplied accessories.

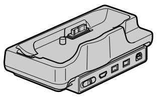
to J MODEL



AC-L AC Adaptor (1)
⚠ 1-477-534-11

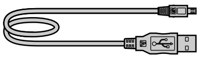


Power Cord (1)
⚠ 1-769-608-31 (AEP, E)
⚠ 1-776-985-11 (KR)
⚠ 1-782-476-51 (CH)
⚠ 1-783-374-12 (UK, HK)
⚠ 1-790-107-41 (US, CND)
⚠ 1-790-732-71 (JE)
⚠ 1-827-945-11 (AUS)

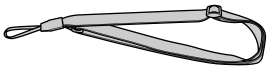


Handycam station (1)
DCRA-C121
1-818-729-11 (HC42/HC42E/HC43)
DCRA-C123
1-818-729-31 (HC39E)

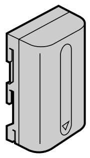
Shoe cover (1)
2-188-484-01



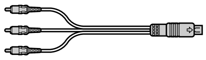
USB cable (1)
1-829-868-31



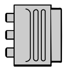
Shoulder strap (1)
2-176-235-01



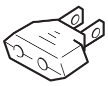
Rechargeable battery pack
NP-FP50 (1)



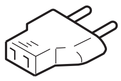
A/V connecting cable (1)
1-823-156-51



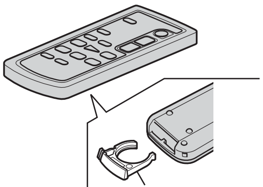
21-pin adaptor (1)
1-770-783-21
(AEP, UK)



Conversion 2P adaptor (1)
⚠ 1-569-008-12 (E)

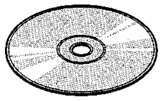


Conversion 2P adaptor (1)
⚠ 1-569-007-12 (JE)

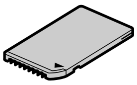


Battery Holder
3-083-973-01

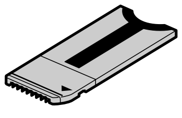
Wireless Remote Commander
RMT-831 (1)
1-477-898-41



CD-ROM
(SPVD-012 2005 USB Driver)
(Picture Package Ver. 1.5) (1)
2-515-350-01 (EXCEPT CH)
2-586-797-01 (CH)



Memory Stick Duo (1)
(not supplied)
(HC43/HC43E)



Memory Stick Duo adaptor (1)
(not supplied)
(HC43/HC43E)

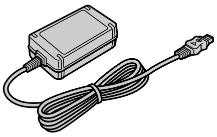
Other accessories

2-584-906-11	MANUAL, INSTRUCTION (ENGLISH) (HC42: US, CND, E, JE)
2-584-906-21	MANUAL, INSTRUCTION (FRENCH) (HC42: CND)
2-584-906-31	MANUAL, INSTRUCTION (SPANISH) (HC42: E, JE)
2-584-906-41	MANUAL, INSTRUCTION (PORTUGUESE) (HC42: E, JE)
2-584-906-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HC42: E)
2-584-906-61	MANUAL, INSTRUCTION (KOREAN) (HC42: KR, JE)
2-584-907-11	MANUAL, INSTRUCTION (ENGLISH) (HC39E: AEP, UK/HC42E: AEP, UK, E, HK, AUS, JE)
2-584-907-21	MANUAL, INSTRUCTION (FRENCH) (HC39E: AEP/HC42E: AEP, E)
2-584-907-31	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (HC39E: AEP/HC42E: AEP)
2-584-907-41	MANUAL, INSTRUCTION (ITALIAN, GREEK) (HC39E: AEP/HC42E: AEP)
2-584-907-51	MANUAL, INSTRUCTION (GERMAN, DUTCH) (HC39E: AEP/HC42E: AEP, JE)
2-584-907-61	MANUAL, INSTRUCTION (SWEDISH, RUSSIAN) (HC39E: AEP/HC42E: AEP)
2-584-907-71	MANUAL, INSTRUCTION (DANISH, FINNISH) (HC39E: NE/HC42E: NE)
2-584-907-81	MANUAL, INSTRUCTION (POLISH, CZECH) (HC39E: EE/HC42E: EE)
2-584-907-91	MANUAL, INSTRUCTION (HUNGARIAN, SLOVAKIAN) (HC39E: EE/HC42E: EE)
2-586-575-11	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (HC42E: E)
2-586-575-21	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HC42E: HK)
2-586-575-31	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (HC42E: E, JE)

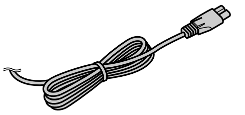
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• J MODEL

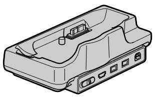
付属品



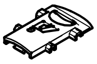
ACアダプター（1）
（AC-L15A/L15B）
⚠ 1-477-534-11



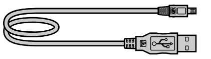
電源コード（1）
⚠ 1-790-732-71



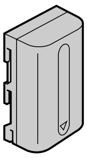
ハンディーカム
ステーション（1）
（DCRA-C121）
1-818-729-11



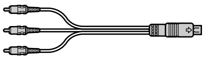
シューカバー（1）
2-188-484-01



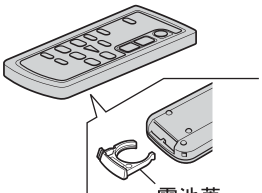
USBケーブル（1）
1-829-868-31



リチャージャブル
バッテリーパック（1）
（NP-FP50）

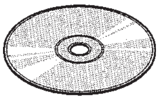


A/V接続ケーブル（1）
1-823-156-51



電池蓋
3-083-973-01

ワイヤレスリモコン（1）
RMT-831
1-477-898-51

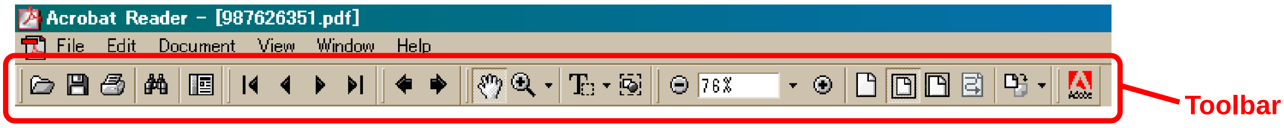


CD-ROM
（SPVD-012 2005 USBドライバ）
（Picture Package Ver. 1.5）（1）
2-515-350-01

図面番号	部品コード	部品名
	2-584-906-01	取扱説明書

⚠印の部品，または⚠印付きの点線で囲まれた部品は，
安全性を維持するために重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

[Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]


Acrobat Reader – [987626351.pdf]
File Edit Document View Window Help
76%
Toolbar

Printing a text

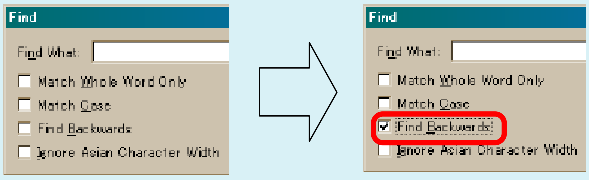
1. Click the Print button 🖨.
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

Application of printing:
To set a range to be printed within a page, select the graphic selection tool and drag on the page to enclose a range to be printed, and then click the Print button.

Finding a text

1. Click the Find button.
2. Enter a character string to be found into a text box, and click the [Find]. (Specify the find options as necessary)

Application to the Service Manual:
To execute “find” from current page toward the previous pages, select the check box “Find Backward” and then click the “Find”.



☐ Match Whole Word Only
☐ Match Case
☐ Find Backwards
☐ Ignore Asian Character Width

☐ Match Whole Word Only
☐ Match Case
☑ Find Backwards
☐ Ignore Asian Character Width

3. Open the find dialog box again, and click the [Find Again] and you can find the matched character strings displayed next. (Character strings entered previously are displayed as they are in the text box.)

Application to the Service Manual:
The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.
Note: The find function may not be applied to the Service Manual depending on the date of issue.

Switching a page

- To move to the first page, click the ⏮.
- To move to the last page, click the ⏭.
- To move to the previous page, click the ◀.
- To move to the next page, click the ▶.

Reversing the screens displayed once

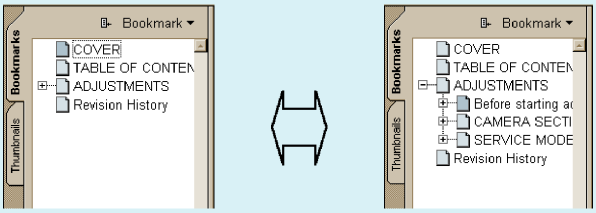
- To reverse the previous screens (operation) one by one, click the ⇦.
- To advance the reversed screens (operation) one by one, click the ⇨.

Application to the Service Manual:
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

Moving with link

1. Select either palm tool ✋, zoom tool 🔍, text selection tool T, or graphic selection tool.
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer will change to the forefinger form ☝.
3. Then, click the link. (You will go to the link destination.)

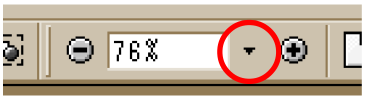
Moving with bookmark:
Click an item (text) on the bookmark pallet, and you can move to the link destination. Also, clicking ⊞ can display the hidden items.
(To go back to original state, click ⊟)



Zooming or rotating the screen display

“Zoom in/out”

- Click the triangle button in the zoom control box to select the display magnification. Or, you may click ⊕ or ⊖ for zooming in or out.

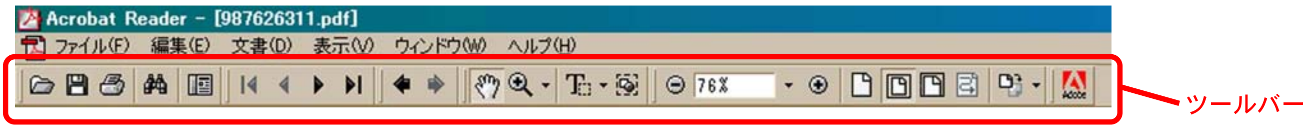


“Rotate”

- Click rotate tool, and the page then rotates 90 degrees each.

Application to the Service Manual:
The printed circuit board diagram you see now can be changed to the same direction as the set.

【Adobe Acrobat Reader Ver 5.0（for Windows）ツールバー内にある主なボタンの機能説明】


Acrobat Reader - [987626311.pdf]
ファイル(F) 編集(E) 文書(D) 表示(V) ウィンドウ(W) ヘルプ(H)
76%
ツールバー

文章を印刷する

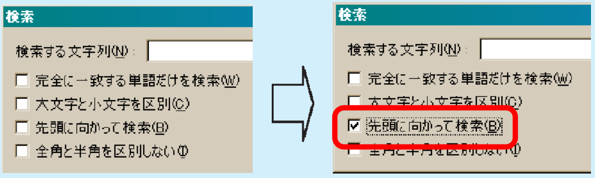
1. 印刷ボタン をクリックする。
2. プリンター、印刷範囲、印刷部数、および他のオプションを指定して「OK」をクリックする。

> **印刷の応用：**
> ページ内で印刷したい範囲を設定するには、グラフィック選択ツール を選択し、ページ上をドラッグして印刷したい範囲を囲んでから印刷ボタンをクリックする。

文章内を検索する

1. 検索ボタン をクリックする。
2. 検索したい文字列をテキストボックスに入力して「検索」をクリックする。（必要に応じて検索オプションを指定する）

> **サービスマニュアルへの応用：**
> 現在のページから前ページに向かって検索する場合は「先頭に向かって検索」のチェックボックスを選択してから「検索」をクリックする。


検索
検索する文字列(N)
完全に一致する単語だけを検索(W)
大文字と小文字を区別(C)
先頭に向かって検索(B)
全角と半角を区別しない(I)
検索
検索する文字列(N)
完全に一致する単語だけを検索(W)
大文字と小文字を区別(C)
先頭に向かって検索(B)
全角と半角を区別しない(I)

3. 検索ダイアログボックスをもう一度開き、「次を検索」をクリックすると次に出てくる一致文字列を検索することができる。（前回入力した文字列が、テキストボックスにそのまま表示されている）

> **サービスマニュアルへの応用：**
> 文章内にある図面ページ（ブロックダイヤグラム、回路図、プリント図）および部品表ページなどは、この検索機能を使って部品検索することができる。例えば、ブロックダイヤグラム上でICのRef. No.を検索し、「次を検索」を続けることによって回路図、プリント図上にあるICのRef. No.へ次々と移動する。
> 注意：発行年月日によって検索できない場合もあります。

ページを切り換える

- 最初のページに移動する場合、|◀ をクリックする。
- 最後のページに移動する場合、▶| をクリックする。
- 前のページに移動する場合、◀ をクリックする。
- 次のページに移動する場合、▶ をクリックする。

一度表示した画面へ逆戻りする

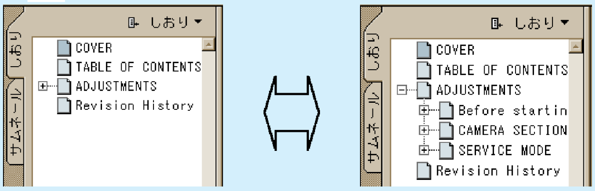
- 前の画面（操作）へ1つずつ逆戻りする場合、◀ をクリックする。
- 戻した画面（操作）を1つずつ前に進める場合、▶ をクリックする。

> **サービスマニュアルへの応用：**
> 回路図とプリント図を行き来できるので電圧チェックに便利です。

リンクを使用して移動する

1. 手のひらツール 、ズームツール 、テキスト選択ツール 、グラフィック選択ツール のいずれかを選択する。
2. 文章内のリンクのある場所（表紙および章目次ページのボタン、外し方のフローページ、図面ページでは文字が青色になっているところなど）にポインタを置くと、ポインタが人差し指の形「 」に変わる。
3. そのままリンクをクリックする。（リンク先へ移動する）

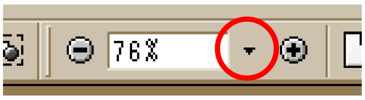
> **しおりを利用して移動する：**
> しおりパレット上の項目（テキスト）をクリックするとリンク先へ移動することができる。また、「⊞··」をクリックすると隠れている項目を表示することができる。（「⊟··」をクリックすると元に戻る）


しおり
サムネール
しおり
COVER
TABLE OF CONTENTS
ADJUSTMENTS
Revision History
しおり
サムネール
しおり
COVER
TABLE OF CONTENTS
ADJUSTMENTS
Before startin
CAMERA SECTION
SERVICE MODE
Revision History

画面の表示を拡大、縮小または回転させる

「拡大/縮小」

- 倍率ボックスの三角矢印ボタンをクリックし、表示倍率を選択する。または ⊕、⊖ をクリックしても使えます。



「回転」

- 回転ツール をクリックすると、ページが90度ずつ回転する。

> **サービスマニュアルへの応用：**
> 見ているプリント図をセットと同じ向きに変えられます。

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2005.01	Official Release	—	—

DCR-HC39E/HC41/HC42/HC42E/HC43/HC43E

RMT-831

Ver 1.0 2005.01

Revision History

SECTION 6
ADJUSTMENTS

ADJ

Link

- Before starting adjustments
  - Adjusting items when replacing main parts and boards
- CAMERA SECTION ADJUSTMENTS
  - PREPARATIONS BEFORE ADJUSTMENTS
  - INITIALIZATION OF 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F PAGE DATA
  - CAMERA SYSTEM ADJUSTMENTS
  - ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS
  - LCD SYSTEM ADJUSTMENTS
- MECHANISM SECTION ADJUSTMENTS
  - HOW TO ENTER RECORD MODE WITHOUT CASSETE
  - HOW TO ENTER PLAYBACK MODE WITHOUT CASSETE
  - TAPE PATH ADJUSTMENT
- VIDEO SECTION ADJUSTMENTS
  - PREPARATIONS BEFORE ADJUSTMENTS
  - SYSTEM CONTROL SYSTEM ADJUSTMENTS
  - SERVO AND RF SYSTEM ADJUSTMENTS
  - VIDEO SYSTEM ADJUSTMENTS
  - AUDIO SYSTEM ADJUSTMENTS (DCR-HC39E)
  - AUDIO SYSTEM ADJUSTMENTS (Except DCR-HC39E)
- SERVICE MODE
  - ADJUSTMENT REMOTE COMMANDER
  - DATA PROCESS
  - SERVICE MODE

Contents of LEVEL 2 and LEVEL 3 Service Manual

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1. SERVICE NOTE	○	×
2. DISASSEMBLY	○	×
3. BLOCK DIAGRAMS	OVERALL POWER	×
4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS	CD-534, PD-238, CR-050, SI-042, LB-109, JK-278, MS-249 BOARD FP-180, FP-182, FP-186, FP-187, FP-228, FP-467, FP-826 FLEXIBLE BOARD CONTROL KEY BLOCK (SS10300), (SB10300)	VC-378 BOARD
5. REPAIR PARTS LIST	EXPLODED VIEWS	×
	ELECTRICAL PARTS	○ (VC-378 BOARD)

SONY®

2005A0500-1

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DCR-HC39E/HC41/HC42/HC42E/HC43/HC43E

9-876-783-51

Sony EMCS Co.

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* The color reproduction frame is shown on page 6-69

SECTION 6
ADJUSTMENTS

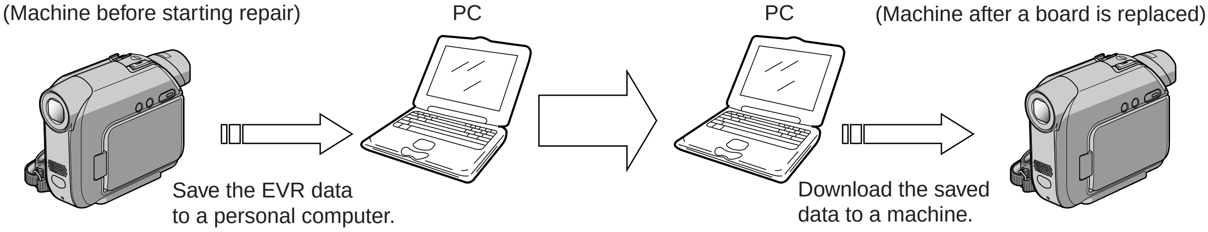
1. Before starting adjustments

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

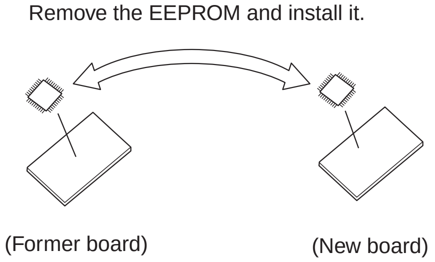
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.


(Machine before starting repair)
PC
PC
(Machine after a board is replaced)
Save the EVR data to a personal computer.
Download the saved data to a machine.

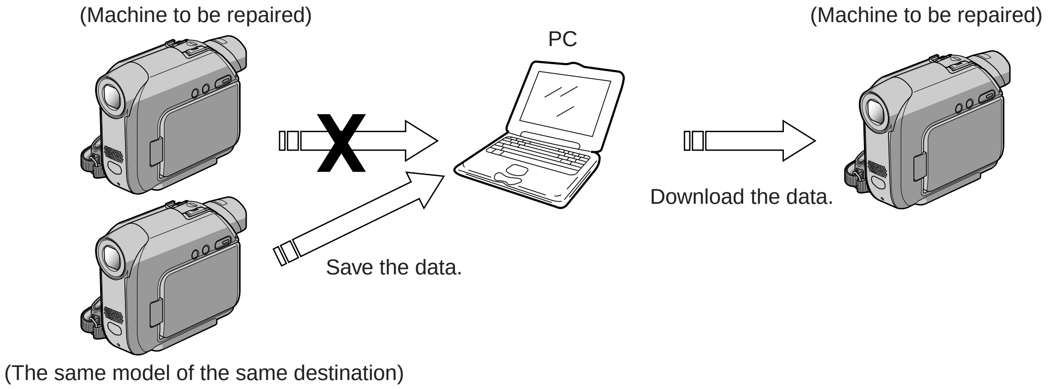
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.


Remove the EEPROM and install it.
(Former board)
(New board)

Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.


(Machine to be repaired)
PC
(Machine to be repaired)
X
Download the data.
Save the data.
(The same model of the same destination)

After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 6-3 for the items to be checked)

1-1. Adjusting items when replacing main parts and boards

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Note 1: When replacing the drum assy or the mechanism deck, reset the data of page: 7, address: A8 to AB to “00”. (Refer to “Record of Use check” of “6-4. SERVICE MODE”)

Note 2: Except DCR-HC39E model only.

Adjustment Section	Adjustment	Replaced part																				
		Block replacement							Mounted part replacement													
		Lens device	LCD block LCD901 (LCD panel, Touch panel)	LCD block D901 (Back light LED)	EVF block LCD902 (LCD panel)	Mechanism deck (Note 1)	Mechanism deck M901 (Drum assembly) (Note 1)	Mechanism deck MD block	CD-534 board IC201 (CCD imager)	CD-534 board IC203 (S/H)	LB-109 board D303 (Back light (EVF))	PD-238 board IC602 (LCD drive)	SI-042 board SE601, 602 (PITCH, YAW sensor)	VC-378 board IC3201, X3201 (A/D converter, Timing generator)	VC-378 board IC3901 (Camera signal process)	VC-378 board IC4001 (Video DSP, Lens Control, etc.)	VC-378 board IC4201 (DV signal process)	VC-378 board IC4301 (REC/PB AMP)	VC-378 board IC4401 (Video, Audio IN/OUT)	VC-378 board IC4701 (Aspect ratio converter)	VC-378 board IC5102 (HI/DS control)	VC-378 board IC7001 (EVF drive)
Initialization of 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F page data	Initialization of A, B, D, 1A, 1B page data																					
	Initialization of 8, C, 18, 1C page data																					
	Initialization of E, F, 14, 19, 1E, 1F page data																					
Camera	33MHz/27MHz origin oscillation check.													●							●	
	HALL adj.	●																				
	MR adj.	●																				
	Flange back and zoom lever center adj.	●							●													
	F No. & ND light quality standard data input	●																				
	MAX GAIN adj.								●	●				●		●						
	Mechanical shutter adj.	●																				
	Color reproduction adj.								●	●				●		●						
	Auto white balance standard data input								●	●				●		●						
	LV standard data input								●	●				●		●						
	Auto white balance adj.								●	●				●		●						
	Steadyshot check												●									
EVF	EVF automatic adj.														●	●						●
	White balance adj. (Note 2)				●						●											●
LCD	LCD automatic adj.											●			●	●						
	V-COM adj.		●									●										
	Transmissive mode white balance adj.		●	●								●										
	Reflective mode white balance adj.		●	●								●										
Mechanism	Tape path adj.					●	●	●														
System control	Touch panel adj.		●																			
	Node uniqe ID No. input																					
Servo, RF	CAP FG duty adj.					●		●														
	Switching position adj.					●	●	●														
	Error rate check					●	●	●									●	●				
Video	S VIDEO OUT Y level adj (1).														●	●			●			
	S VIDEO OUT chroma level adj (1).														●	●			●			
	S VIDEO OUT Y level adj (2).														●	●			●	●		
	S VIDEO OUT chroma level adj (2).														●	●			●	●		
	IC4701 automatic adj.																			●		

Table 6-1-1 (1)

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part							
		CD-534 board (COMPLETE)	LB-109 board (COMPLETE)	PD-238 board (COMPLETE)	SI-042 board (COMPLETE)	VC-378 board (COMPLETE)	VC-378 board IC5302 (EEP ROM)	VC-378 board IC5101 (EEP ROM)	Supporting
Initialization of 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F page data	Initialization of A, B, D, 1A, 1B page data					●		●	
	Initialization of 8, C, 18, 1C page data					●	●		
	Initialization of E, F, 14, 19, 1E, 1F page data					●	●		
Camera	33MHz/27MHz origin oscillation check.					●	●		
	HALL adj.					●	●		●
	MR adj.					●	●		●
	Flange back and zoom lever center adj.	●				●	●		●
	F No. & ND light quality standard data input					●	●		●
	MAX GAIN adj.	●				●	●		●
	Mechanical shutter adj.					●	●		●
	Color reproduction adj.	●				●	●		●
	Auto white balance standard data input	●				●	●		●
	LV standard data input	●				●	●		●
	Auto white balance adj.	●				●	●		●
	Steadyshot check				●	●	●		●
EVF	EVF automatic adj.					●	●		●
	White balance adj. (Note 2)		●			●	●		
LCD	LCD automatic adj.			●		●	●		●
	V-COM adj.			●		●	●		
	Transmissive mode white balance adj.			●		●	●		
	Reflective mode white balance adj.			●		●	●		●
Mechanism	Tape path adj.								
System control	Touch panel adj.					●		●	
	Node uniqe ID No. input					●	●		
Servo, RF	CAP FG duty adj.					●	●		●
	Switching position adj.					●	●		●
	Error rate check					●	●		●
Video	S VIDEO OUT Y level adj (1).					●	●		
	S VIDEO OUT chroma level adj (1).					●	●		
	S VIDEO OUT Y level adj (2).					●	●		
	S VIDEO OUT chroma level adj (2).					●	●		
	IC4701 automatic adj.					●	●		

Note 3: IC5202 (Flash memory) on the VC-378 board cannot be replaced.

Table 6-1-1 (2)

6-1. CAMERA SECTION ADJUSTMENTS

1-1. PREPARATIONS BEFORE ADJUSTMENTS (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- AC power adapter
- Color monitor
- Frequency counter
- Vectorscope

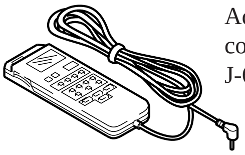
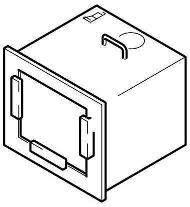
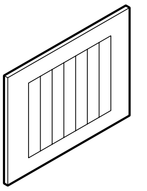
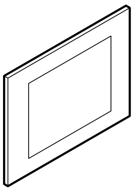
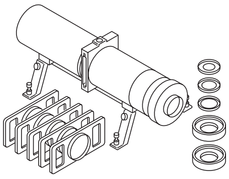
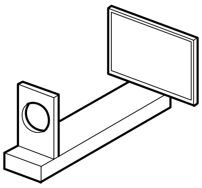
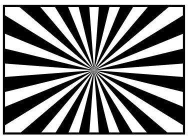
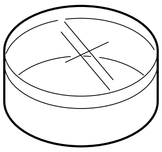
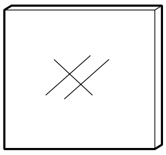
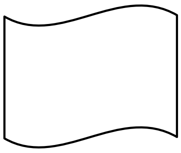
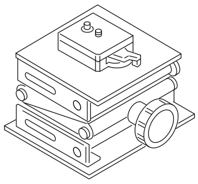
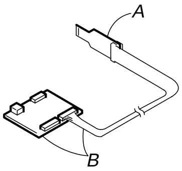
J-1  Adjustment remote commander J-6082-053-B	J-2  Pattern box PTB-450 J-6082-200-A or Small pattern box PTB-1450 J-6082-557-A	J-3  Color bar chart For PTB-450: J-6020-250-A For PTB-1450: J-6082-559-A
J-4  Clear chart For PTB-450: J-6080-621-A For PTB-1450: J-6082-560-A	J-5  Minipattern box J-6082-353-B	J-6  Flange back adjustment jig J-6082-563-A
J-7  Siemens star chart J-6080-875-A	J-8  Filter for color temperature correction (C14) J-6080-058-A	J-9  ND filter 1.0 J-6080-808-A ND filter 0.4 J-6080-806-A ND filter 0.1 J-6080-807-A
J-10  Back ground paper J-2501-130-A	J-11  Camera table J-6082-384-A	J-12  A: CPC-15 J-6082-564-A B: I/F unit for LANC control J-6082-521-A

Fig. 6-1-1

1-1-2. Preparations

Note: Before perform the adjustment, check that the data of page: 0, address: 10 is "00".
If not, select page: 0, address: 10, and set data "00".

1) Connect the equipment for adjustments according to Fig. 6-1-3.

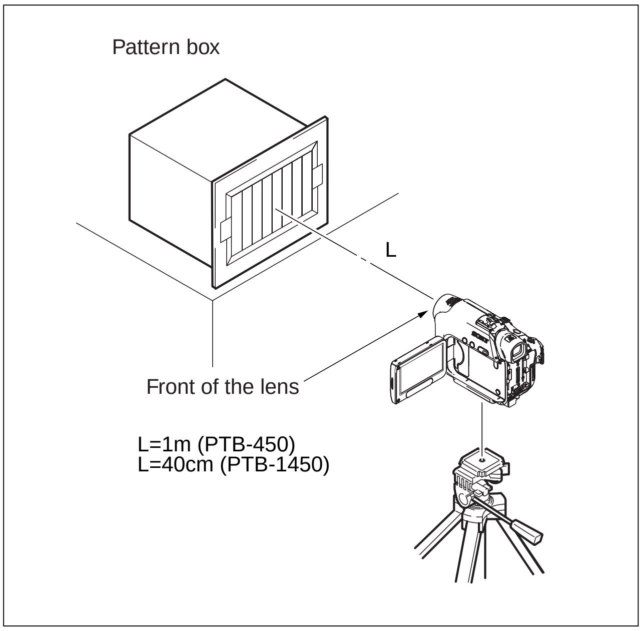

Pattern box
L
Front of the lens
L=1m (PTB-450)
L=40cm (PTB-1450)

Fig. 6-1-2

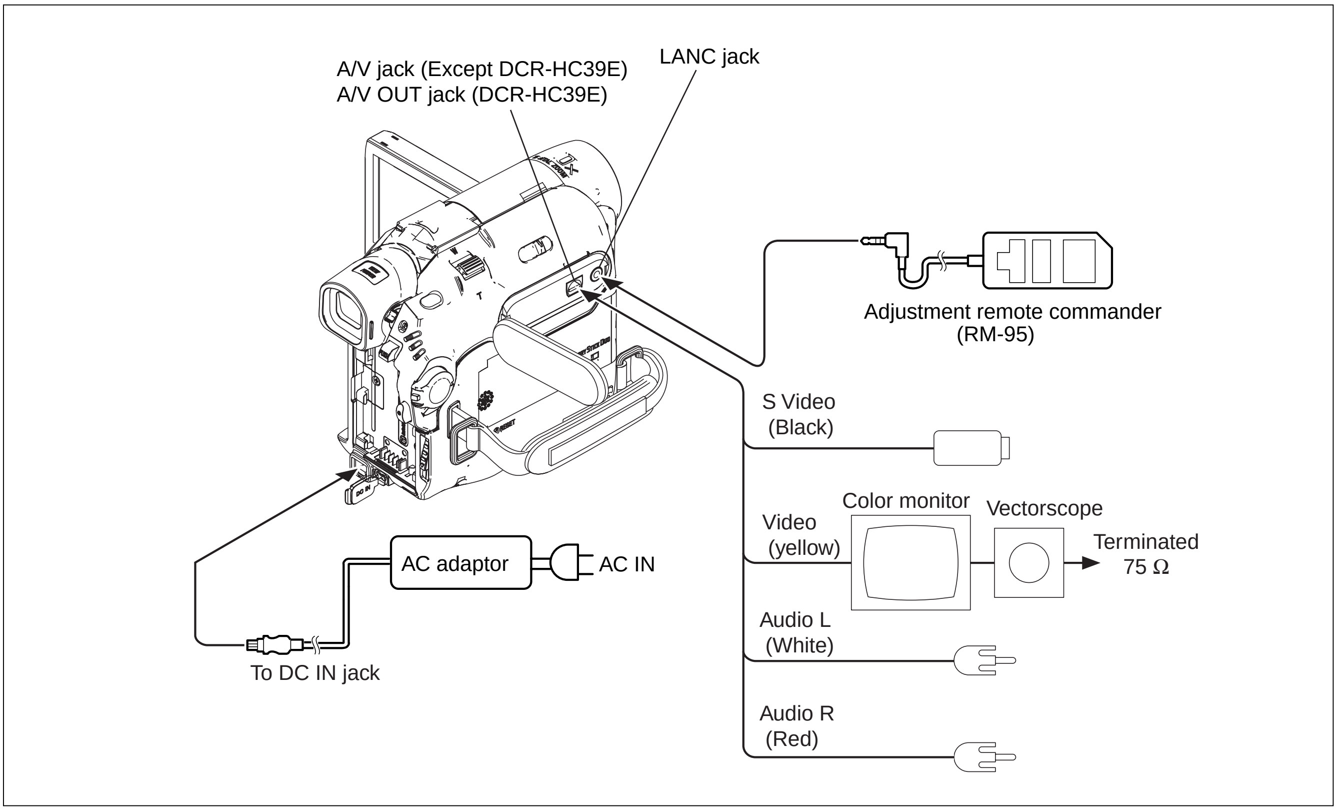

A/V jack (Except DCR-HC39E)
A/V OUT jack (DCR-HC39E)
LANC jack
Adjustment remote commander
(RM-95)
S Video
(Black)
Color monitor
Vectorscope
Video
(yellow)
Terminated
75 Ω
AC adaptor
AC IN
To DC IN jack
Audio L
(White)
Audio R
(Red)

Fig. 6-1-3

1-1-3. Precaution

1. Setting the Switch

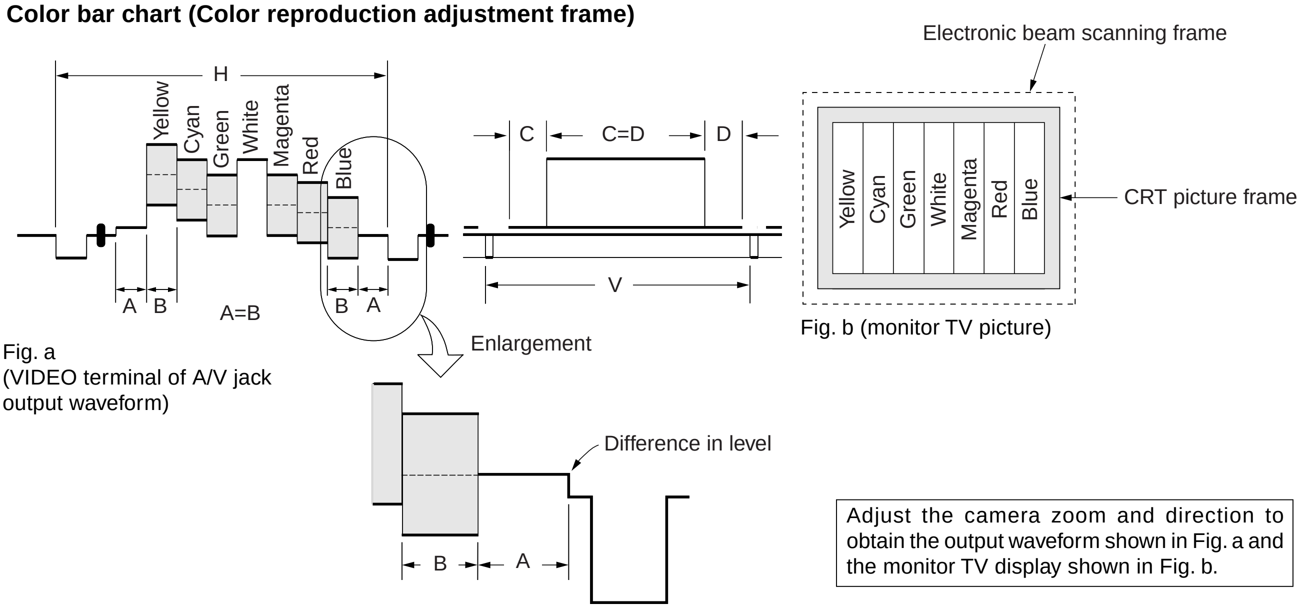
Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (SS10300 block) ....CAMERA-TAPE
2. LENS COVER switch (Lens block) .... OPEN
3. NIGHTSHOT PLUS switch (Lens block) .... OFF
4. BACK LIGHT (FP-187 flexible) .... OFF
5. PROGRAM AE (MENU setting) .... AUTO
6. EXPOSURE (MENU setting) .... AUTO
7. WHITE BAL. (MENU setting) .... AUTO
8. FOCUS (MENU setting) .... MANUAL
9. COLOR SLOW S (MENU setting)............................... OFF
10. DIGITAL ZOOM (MENU setting) .... OFF
11. WIDE SELECT (Panel block) 16: 9
12. STEADY SHOT (MENU setting) .... OFF
13. D. EFFECT (MENU setting) .... OFF
14. PICT. EFFECT (MENU setting)................................... OFF
15. DEMO MODE (MENU setting) .... OFF

2. Order of Adjustments

Basically carry out adjustments in the order given.

Color bar chart (Color reproduction adjustment frame)


Electronic beam scanning frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
C
C=D
D
CRT picture frame
A
B
A=B
B
A
V
Fig. b (monitor TV picture)
Enlargement
Fig. a
(VIDEO terminal of A/V jack output waveform)
Difference in level
B
A

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the monitor TV display shown in Fig. b.

Fig. 6-1-4

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 6-1-4. (Color reproduction adjustment frame)
2) Mixed color compensation chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a mixed color compensation chart in its place. (Do not perform zoom operations during this time)
3) Chart for flange back adjustment
   Join together a piece of white A0 size paper (1189mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-5.

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

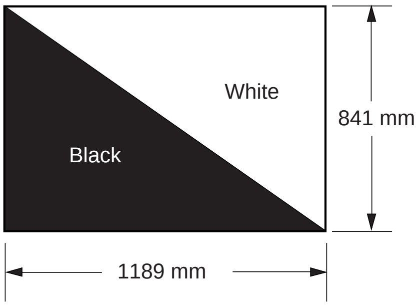

White
Black
841 mm
1189 mm

Fig. 6-1-5

4. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate flash adjustment. If it is not available, prepare the flash adjustment box as given below;

1) Provide woody board A, B and C of 15 mm thickness.

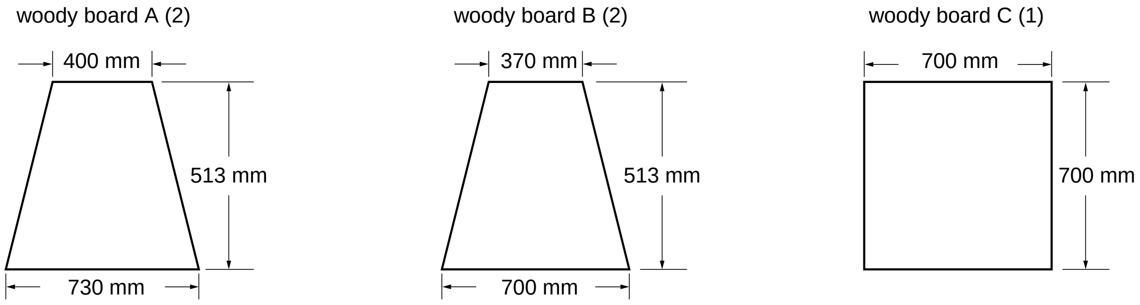

woody board A (2)
400 mm
513 mm
730 mm
woody board B (2)
370 mm
513 mm
700 mm
woody board C (1)
700 mm
700 mm

Fig. 6-1-6

2) Apply black mat paint to one side of woody board A and B.
3) Attach background paper (J-2501-130-A) to woody board C.
4) Assemble so that the black sides and the background paper side of woody board A, B and C are internal. (Fig. 6-1-7)

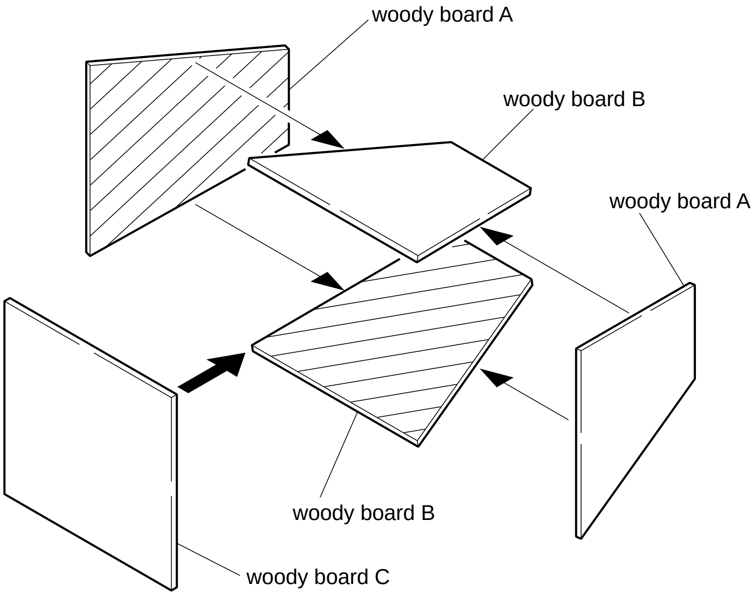

woody board A
woody board B
woody board A
woody board B
woody board C

Fig. 6-1-7

1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F PAGE DATA

Note: If reading/writing data on pages 14, 18, 19, 1A, 1B, 1C, 1E, 1F, set data: 01 to page: 0, address: 10, and then select pages: 4, 8, 9, A, B, C, E, F.
By this data setting, the pages 14, 18, 19, 1A, 1B, 1C, 1E, 1F, can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

1-2-1. Initialization of A, B, D, 1A, 1B Page Data

Note: Check that the data of page: 0, address: 10 is "00".

1. Initializing of A, B, D, 1A, 1B Page Data

Note 1: If the A, B, D, 1A, 1B page data has been initialized, the following adjustments need to be performed again.
1) Modification of A, B, D, 1A, 1B page data
2) Touch panel adjustment

Adjustment Page	A
Adjustment Address	10 to FF
Adjustment Page	B
Adjustment Address	00 to FF
Adjustment Page	D
Adjustment Address	10 to 70
Adjustment Page	1A
Adjustment Address	00 to FF
Adjustment Page	1B
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	7	04		Set the following data 30: NTSC model 31: PAL model
4	7	01		Set the following data 20: Initializing A page 21: Initializing B page 22: Initializing D page 23: Initializing 1A page 24: Initializing 1B page 25: Initializing A and 1A page 26: Initializing B and 1B page 28: Initializing A, B, D, 1A and 1B page
5	7	00	01	Press PAUSE button.
6	7	02		Check the data changes to "01".
7				Perform "Modification of A, B, D, 1A, 1B Page Data"

Note 2: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

2. Modification of A, B, D, 1A, 1B Page Data

If the A, B, D, 1A, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) If modification of data on pages A, B, D, set data: 00 to page: 0, address: 10, and then select pages A, B, D.
3) If modification of data on pages 1A, 1B, set data: 01 to page: 0, address: 10, and then select pages A, B.
After the modification of data finished, return the data on page: 0, address: 10 to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note 1: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification A, B, D, 1A, 1B page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

Note 2: If following symptoms occur after completing of the "Modification A, B, D, 1A, 1B page data", check that the data of the "Fixed data-2" address of A, B, D, 1A, 1B page are same as those of same model of same destination.
1) The power is shut off so that unit cannot operate.

3. A Page table

Note 1: Check that the data of page: 0, address: 10 is“00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	00	00	Test mode
11 to 17			Fixed data-1 (Initialized data)
18			Fixed data-2
19			Fixed data-1 (Initialized data)
1A			Fixed data-2
1B to 2E			Fixed data-1 (Initialized data)
2F			Fixed data-2
30			
31			
32			
33 to 60			Fixed data-1 (Initialized data)
61			Fixed data-2
62			
63			
64			
65			
66			Fixed data-1 (Initialized data)
67			Fixed data-2
68 to 8F			Fixed data-1 (Initialized data)
90	EA	EA	Touch panel adj
91	0F	0F	
92	C7	C7	
93	2A	2A	
94 to 97			Fixed data-1 (Initialized data)
98			Fixed data-2
99			
9A			
9B			
9C			
9D			
9E			
9F to CF			Fixed data-1 (Initialized data)
D0			Fixed data-2
D1			
D2			
D3, D4			Fixed data-1 (Initialized data)
D5			Fixed data-2
D6			Fixed data-1 (Initialized data)
D7			Fixed data-2
D8			Fixed data-1 (Initialized data)
D9			Fixed data-2
DA to F0			Fixed data-1 (Initialized data)
F1			Fixed data-2

Address	Initial value		Remark
	NTSC	PAL	
F2			Fixed data-2
F3			
F4 to FF			Fixed data-1 (Initialized data)

4. B Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF			Fixed data-1 (Initialized data)

5. D Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10 to 13	Fixed data-1 (Initialized data)		
14	Fixed data-2		
15	Fixed data-1 (Initialized data)		
16	Fixed data-2		
17			
18 to 27	Fixed data-1 (Initialized data)		
28	Fixed data-2		
29			
2A			
2B			
2C			
2D	Fixed data-1 (Initialized data)		
2E	Fixed data-2		
2F			
30			
31, 32	Fixed data-1 (Initialized data)		
33	Fixed data-2		
34 to 44	Fixed data-1 (Initialized data)		
45	Fixed data-2		
46, 47	Fixed data-1 (Initialized data)		
48	Fixed data-2		
49	Fixed data-1 (Initialized data)		
4A	Fixed data-2		
4B			
4C	Fixed data-1 (Initialized data)		
4D	Fixed data-2		
4E to 56	Fixed data-1 (Initialized data)		
57	Fixed data-2		
58 to 70	Fixed data-1 (Initialized data)		

6. 1A Page table

Note 1: If reading/writing data on pages 1A, set data: 01 to page: 0, address: 10, and then select pages: A. By this data setting, the pages 1A can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

7. 1B Page table

Note 1: If reading/writing data on pages 1B, set data: 01 to page: 0, address: 10, and then select pages: B. By this data setting, the pages 1B can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

1-2-2. Initialization of 8, C, 18, 1C Page Data

1. Initializing of 8, C, 18, 1C Page Data

Note1: If "Initialization of Pages 8, C, 18, 1C" is executed, all data on pages 8, C, 18, 1C are initialized. (Only an individual page cannot be initialized)

Note2 : If the 8, C, 18, 1C page data has been initialized, the following adjustments need to be performed again.
1) Modification of 8, C, 18, 1C page data
2) Electronic viewfinder system adjustments
3) LCD system adjustments
4) Node unique ID No. input
5) Servo, RF system adjustments
6) Video system adjustments

Adjustment Page	8
Adjustment Address	00 to FF
Adjustment Page	C
Adjustment Address	10 to FF
Adjustment Page	18
Adjustment Address	00 to FF
Adjustment Page	1C
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	3	81		Check that the data is "00"
4	3	80	0C	Press PAUSE button.
5	3	80		Check the data changes to "1C".
6				Perform "Modification of 8, C, 18, 1C Page Data"

2. Modification of 8, C, 18, 1C Page Data

If the 8, C, 18, 1C page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) If modification of data on pages 8, C, set data: 00 to page: 0, address: 10, and then select pages 8, C.
3) If modification of data on pages 18, 1C, set data: 01 to page: 0, address: 10, and then select pages 8, C.
   After the modification of data finished, return the data on page: 0, address: 10 to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) If all areas were initialized, check that the data at the addresses for adjustment are initial values (adjustment initial values) listed in the table.
   If different, change them to the adjustment initial values.

Processing after Completing Modification 8, C, 18, 1C page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

3. 8 Page table

Note 1: Check that the data of page: 0, address: 10 is“00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 29	Fixed data-1 (Initialized data)		
2A	Fixed data-2		
2B to 3F	Fixed data-1 (Initialized data)		
40	Fixed data-2		
41			
42	Fixed data-1 (Initialized data)		
43	Fixed data-2		
44			
45 to 4C	Fixed data-1 (Initialized data)		
4D	Fixed data-2		
4E to 79	Fixed data-1 (Initialized data)		
7A	Fixed data-2		
7B			
7C to 81	Fixed data-1 (Initialized data)		
82	Fixed data-2		
83	Fixed data-1 (Initialized data)		
84	Fixed data-2		
85			
86			
87			
88			
89			
8A to 8D	Fixed data-1 (Initialized data)		
8E	Fixed data-2		
8F			
90 to A8	Fixed data-1 (Initialized data)		
A9	Fixed data-2		
AA, AB	Fixed data-1 (Initialized data)		
AC	Fixed data-2		
AD to B2	Fixed data-1 (Initialized data)		
B3	Fixed data-2		
B4, B5	Fixed data-1 (Initialized data)		
B6	Fixed data-2		
B7	Fixed data-1 (Initialized data)		
B8	Fixed data-2		
B9			
BA			
BB			
BC, BD	Fixed data-1 (Initialized data)		
BE	Fixed data-2		
BF			
C0 to C2	Fixed data-1 (Initialized data)		
C3	Fixed data-2		
C4			
C5			
C6			
C7	Fixed data-1 (Initialized data)		
C8	Fixed data-2		
C9			
CA			
CB			
CC			
CD			
CE to D6	Fixed data-1 (Initialized data)		
D7	Fixed data-2		
D8 to DF	Fixed data-1 (Initialized data)		
E0	Fixed data-2		
E1	Fixed data-1 (Initialized data)		
E2	Fixed data-2		
E3			
E4			
E5			
E6			
E7			
E8 to EF	Fixed data-1 (Initialized data)		
F0	Fixed data-2		
F1			
F2 to F9	Fixed data-1 (Initialized data)		
FA	Fixed data-2		
FB			
FC to FF	Fixed data-1 (Initialized data)		

4. C Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	EE	EE	Switching position adj.
11	00	00	
12	00	00	
13	00	00	
14, 15			Fixed data-1 (Initialized data)
16	E0	E0	CAP FG duty adj.
17 to 24			Fixed data-1 (Initialized data)
25	80	80	S VIDEO out Y level adj (2).
26	54	54	S VIDEO out chroma level adj (2).
27	3D	3D	
28 to 3B			Fixed data-1 (Initialized data)
3C			Fixed data-2
3D			
3E			
3F	A0	A0	EVF automatic adj. (VCO adj.)
40	B0	B0	
41			Fixed data-1 (Initialized data)
42			Fixed data-2
43			Fixed data-1 (Initialized data)
44			Fixed data-2
45	90	90	White balance adj. (EVF)
46	7C	7C	
47	28	28	EVF automatic adj. (Contrast adj.)
48			Fixed data-2
49			
4A, 4B			Fixed data-1 (Initialized data)
4C			Fixed data-2
4D			
4E			
4F			
50	A0	A0	LCD automatic adj. (VCO adj.)
51	B0	B0	
52	BC	BC	V-COM adj. (LCD)
53, 54			Fixed data-1 (Initialized data)
55			Fixed data-2
56	88	88	Transmissive mode white balans adj. (LCD)
57	71	71	
58	50	50	LCD automatic adj. (Contrast adj.)
59			Fixed data-2
5A to 5E			Fixed data-1 (Initialized data)
5F			Fixed data-2
60, 61			Fixed data-1 (Initialized data)
62			Fixd data-2
63			Fixed data-2
64, 65			Fixed data-1 (Initialized data)
66			Fixed data-2
67			
68			
69, 6A			Fixed data-1 (Initialized data)
6B			Fixed data-2
6C to 74			Fixed data-1 (Initialized data)
75			Fixed data-2
76 to 78			Fixed data-1 (Initialized data)
79			Fixed data-2
7A			
7B	7D	7D	Reflective mode white balance adj. (LCD)
7C	79	79	
7D, 7E			Fixed data-1 (Initialized data)
7F			Fixed data-2
80	91	91	S VIDEO out Y level adj (1).
81	BA	BA	S VIDEO out chroma level adj (1).
82	85	85	
83	00	00	IC4701 Automatic adj.
84	00	00	
85	00	00	
86	00	00	
87	33	33	
88	D2	D2	
89	A8	A8	
8A	23	23	
8B to 90			Fixed data-1 (Initialized data)
91			Fixed data-2
92			
93			
94			
95			
96			
97, 98			Fixed data-1 (Initialized data)
99	80	80	IC4701 Automatic adj.
9A to A0			Fixed data-1 (Initialized data)
A1	1F	1F	IC4701 Automatic adj.
A2	1F	1F	
A3	1F	1F	
A4			Fixed data-2
A5 to A8			Fixed data-1 (Initialized data)
A9			Fixed data-2
AA			
AB			
AC			
AD to B1			Fixed data-1 (Initialized data)

C Page table

Address	Initial value		Remark
	NTSC	PAL	
B2			Fixed data-2
B3			
B4			
B5			
B6			
B7			Fixed data-1 (Initialized data)
B8			Fixed data-2
B9			Fixed data-1 (Initialized data)
BA			Fixed data-2
BB to CB			Fixed data-1 (Initialized data)
CC			Fixed data-2
CD			
CE			
CF			
D0			
D1			
D2			
D3			
D4			
D5 to D7			Fixed data-1 (Initialized data)
D8			Fixed data-2
D9			
DA			
DB			
DC, DD			Fixed data-1 (Initialized data)
DE			Fixed data-2
DF			
E0 to E4			Fixed data-1 (Initialized data)
E5	00	00	Node unique ID No. Input
E6	00	00	
E7	00	00	
E8 to F3			Fixed data-1 (Initialized data)
F4	00	00	Emergency memory address (Mechanism section)
F5	00	00	
F6	00	00	
F7	00	00	
F8	00	00	
F9	00	00	
FA	00	00	
FB	00	00	
FC	00	00	
FD	00	00	
FE	00	00	
FF	00	00	

5. 18 Page table

Note 1: If reading/writing data on pages 18, set data: 01 to page: 0, address: 10, and then select pages: 8. By this data setting, the pages 18 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to“00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00			Fixed data-1 (Initialized data)
01			Fixed data-2
02 to D7			Fixed data-1 (Initialized data)
D8			Fixed data-2
D9 to DC			Fixed data-1 (Initialized data)
DD			Fixed data-2
DE			Fixed data-1 (Initialized data)
DF			Fixed data-2
E0			
E1 to E3			Fixed data-1 (Initialized data)
E4			Fixed data-2
E5 to F1			Fixed data-1 (Initialized data)
F2			Fixed data-2
F3 to F6			Fixed data-1 (Initialized data)
F7			Fixed data-2
F8 to FF			Fixed data-1 (Initialized data)

6. 1C Page table

Note 1: If reading/writing data on pages 1C, set data: 01 to page: 0, address: 10, and then select pages: C. By this data setting, the pages 1C can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to“00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 77			Fixed data-1 (Initialized data)
78			Fixed data-2
79 to B2			Fixed data-1 (Initialized data)
B3	00	00	SD error rate check (LP)
B4	00	00	
B5	00	00	
B6	00	00	
B7	00	00	
B8	80	80	
B9	00	00	
BA	00	00	
BB	00	00	
BC	00	00	
BD	00	00	
BE	00	00	
BF	00	00	
C0	00	00	
C1	00	00	
C2	00	00	
C3	80	80	
C4	00	00	
C5	00	00	
C6	00	00	
C7	00	00	
C8	00	00	
C9 to E5			Fixed data-1 (Initialized data)
E6			Fixed data-2
E7 to E9			Fixed data-1 (Initialized data)
EA			Fixed data-2
EB			
EC to EE			Fixed data-1 (Initialized data)
EF			Fixed data-2
F0			
F1			Fixed data-1 (Initialized data)
F2			Fixed data-2
F3 to FF			Fixed data-1 (Initialized data)

1-2-3. Initialization of E, F, 14, 19, 1E, 1F Page Data

1. Initializing of E, F, 14, 19, 1E, 1F Page Data

Note 1: If "Initialization of Pages E, F, 14, 19, 1E, 1F" is executed, all data on pages E, F, 14, 19, 1E, 1F are initialized. (Only an individual page cannot be initialized)

Note 2: If the E, F, 14, 19, 1E, 1F page data has been initialized, the following adjustments need to be performed again.
1) Modification of E, F, 14, 19, 1E, 1F page data
2) Camera system adjustment (if all areas were initialized)

Adjustment Page	E
Adjustment Address	00 to FF
Adjustment Page	F
Adjustment Address	10 to FF
Adjustment Page	14
Adjustment Address	00 to FF
Adjustment Page	19
Adjustment Address	00 to FF
Adjustment Page	1E
Adjustment Address	00 to FF
Adjustment Page	1F
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	6	01		Set the following data, and press PAUSE button. 2D: NTSC model 2F: PAL model
4	6	03	01	Press PAUSE button.
5	6	02		Check the data changes to "01".
6	6	01	00	Press PAUSE button.
7				Perform "Modification of E, F, 14, 19, 1E, 1F Page Data"

Note 3: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

2. Modification of E, F, 14, 19, 1E, 1F Page Data

If the E, F, 14, 19, 1E, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) If modification of data on pages E, F, set data: 00 to page: 0, address: 10, and then select pages E, F.
3) If modification of data on pages 14, 19, 1E, 1F, set data: 01 to page: 0, address: 10, and then select pages 4, 9, E, F.
   After the modification of data finished, return the data on page: 0, address: 10 to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) If all areas were initialized, check that the data at the addresses for adjustment are initial values (adjustment initial values) listed in the table.
   If different, change them to the adjustment initial values.

Processing after Completing Modification E, F, 14, 19, 1E, 1F page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

3. E Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the E, F, 14, 19, 1E, 1F Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of E, F, 14, 19, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 04			Fixed data-1 (Initialized data)
05			Fixed data-2
06, 07			Fixed data-1 (Initialized data)
08			Fixed data-2
09			
0A			
0B			
0C, 0D			Fixed data-1 (Initialized data)
0E			Fixed data-2
0F			Fixed data-1 (Initialized data)
10			Fixed data-2
11			
12			Fixed data-1 (Initialized data)
13			Fixed data-2
14 to 1F			Fixed data-1 (Initialized data)
20			Fixed data-2
21			
22			Fixed data-1 (Initialized data)
23			Fixed data-2
24			
25			
26			
27			
28 to 3B			Fixed data-1 (Initialized data)
3C			Fixed data-2
3D			
3E			
3F			
40 to 43			Fixed data-1 (Initialized data)
44			Fixed data-2
45			
46			
47			
48			
49			
4A			
4B			
4C			
4D			
4E			
4F			
50			
51			
52			Fixed data-2
53			
54			
55			
56 to 5F			Fixed data-1 (Initialized data)
60			Fixed data-2
61			
62			
63			
64, 65			Fixed data-1 (Initialized data)
66			Fixed data-2
67			
68			
69			
6A to 6E			Fixed data-1 (Initialized data)
6F			Fixed data-2
70			
71			
72			
73			
74 to CD			Fixed data-1 (Initialized data)
CE			Fixed data-2
CF to D7			Fixed data-1 (Initialized data)
D8			Fixed data-2
D9 to FF			Fixed data-1 (Initialized data)

4. F Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the E, F, 14, 19, 1E, 1F Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of E, F, 14, 19, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	40	40	33MHz/27MHz origin osillation adj.
11	80	80	Flange back and zoom lever center adj.
12			Fixed data-1 (Initialized data)
13	28	28	Hall adj.
14	70	70	
15, 16			Fixed data-1 (Initialized data)
17	19	19	Hall adj.
18	28	28	
19	D8	D8	
1A, 1B			Fixed data-1 (Initialized data)
1C	00	00	F No. & ND light quality standard data input
1D	00	00	
1E	00	00	
1F	00	00	
20	00	00	
21	00	00	
22	00	00	
23	00	00	
24	00	00	
25	00	00	
26	00	00	
27	00	00	
28	00	00	
29	00	00	
2A	00	00	LV standard data input
2B	30	30	
2C	A0	A0	MAX GAIN adj.
2D			Fixed data-1 (Initialized data)
2E	25	25	Auto white balance standard data input
2F	00	00	
30	07	07	
31	00	00	
32	15	15	Auto white balance adj.
33	00	00	
34	0C	0C	
35	00	00	
36			Fixed data-1 (Initialized data)
37	45	48	Color reproduction adj.
38			Fixed data-1 (Initialized data)
39	2C	2E	Color reproduction adj.
3A to 3F			Fixed data-1 (Initialized data)

Address	Initial value		Remark
	NTSC	PAL	
40	FC	FE	Color reproduction adj.
41	E7	E1	
42, 43			Fixed data-1 (Initialized data)
44	2D	2C	Auto white balance adj.
45	60	C0	
46	59	5B	
47	00	80	
48	37	37	Flange back and zoom lever center adj.
49	1D	1D	
4A	3B	3B	
4B	7A	7A	
4C	1C	1C	
4D	1F	1F	
4E	00	00	
4F	00	00	
50	00	00	
51	00	00	
52	75	75	
53	19	19	
54	00	00	
55	4A	4A	
56	00	00	
57	00	00	
58	00	00	MR adj./Flange back and zoom lever center adj.
59			Fixed data-1 (Initialized data)
5A	80	80	MR adj.
5B	80	80	
5C	80	80	
5D	80	80	
5E	40	40	
5F	C0	C0	
60	40	40	
61	C0	C0	
62	40	40	
63	C0	C0	
64	40	40	
65	C0	C0	
66 to 70			Fixed data-1 (Initialized data)
72			Fixed data-2
73			
74, 75			Fixed data-1 (Initialized data)
76	5C	4D	Mechanical shutter adj.
77	00	00	
78	47	3C	
79	00	00	
7A	3E	34	

F Page table

Address	Initial value		Remark
	NTSC	PAL	
7B	00	00	Mechanical shutter adj.
7C	38	2F	
7D	00	00	
7E	28	20	
7F	00	00	
80	62	60	
81	7A	75	
82	81	7B	
83	7C	76	
84	6A	63	
85	1E	1E	
86	80	80	
87	80	80	
88	80	80	
89	80	80	
8A	80	80	
8B	80	80	
8C to 93			Fixed data-1 (Initialized data)
94			Fixed data-2
95			
96 to 98			Fixed data-1 (Initialized data)
99			Fixed data-2
9A			
9B to 9D			Fixed data-1 (Initialized data)
9E			Fixed data-2
9F to AC			Fixed data-1 (Initialized data)
AD			Fixed data-2
AE			
AF to BF			Fixed data-1 (Initialized data)
C0			Fixed data-2
C1			
C2 to DB			Fixed data-1 (Initialized data)
DC			Fixed data-2
DD			
DE to E2			Fixed data-1 (Initialized data)
E3			Fixed data-2
E4			
E5 to F4			Fixed data-1 (Initialized data)
F5			Fixed data-2
F6, F7			Fixed data-1 (Initialized data)
F8			Fixed data-2
F9			
FA			
FB			
FC to FF			Fixed data-1 (Initialized data)

5. 14 Page table

Note 1: If reading/writing data on pages 14, set data: 01 to page: 0, address: 10, and then select pages: 4. By this data setting, the pages 14 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the E, F, 14, 19, 1E, 1F Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of E, F, 14, 19, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 2C			Fixed data-1 (Initialized data)
2D			Fixed data-2
2E to 31			Fixed data-1 (Initialized data)
32			Fixed data-2
33, 34			Fixed data-1 (Initialized data)
35			Fixed data-2
36 to 3F			Fixed data-1 (Initialized data)
40			Fixed data-2
41			
42			
43			
44			
45			
46			
47			
48 to 4E			Fixed data-1 (Initialized data)
4F			Fixed data-2
50 to D5			Fixed data-1 (Initialized data)
D6			Fixed data-2
D7 to DA			Fixed data-1 (Initialized data)
DB			Fixed data-2
DC, DD			Fixed data-1 (Initialized data)
DE			Fixed data-2
DF to E7			Fixed data-1 (Initialized data)
E8	25	25	Auto white balance standard data input
E9	00	00	
EA	07	07	
EB	00	00	
EC	25	25	
ED	00	00	
EE	07	07	
EF	00	00	
F0	25	25	
F1	00	00	
F2	07	07	
F3	00	00	
F4	15	15	Auto white balance adj.
F5	00	00	
F6	0C	0C	
F7	00	00	Auto white balance adj.
F8	15	15	
F9	00	00	
FA	0C	0C	
FB	00	00	
FC	15	15	
FD	00	00	
FE	0C	0C	
FF	00	00	

6. 19 Page table

Note 1: If reading/writing data on pages 19, set data: 01 to page: 0, address: 10, and then select pages: 9. By this data setting, the pages 19 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the E, F, 14, 19, 1E, 1F Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of E, F, 14, 19, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 2F			Fixed data-1 (Initialized data)
30			Fixed data-2
31 to 35			Fixed data-1 (Initialized data)
36			Fixed data-2
37 to 2F			Fixed data-1 (Initialized data)
54			Fixed data-2
55			
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			
6B			
6C to 76			Fixed data-1 (Initialized data)
77			Fixed data-2
78			
79, 7A			Fixed data-1 (Initialized data)
7B			Fixed data-2
7C, 7D			Fixed data-1 (Initialized data)
7E			Fixed data-2
7F to 86			Fixed data-1 (Initialized data)
87	00	00	Emergency memory address (Camera section)
88	00	00	
89	00	00	Emergency memory address (Camera section)
8A	00	00	
8B to 9E			Fixed data-1 (Initialized data)
9F			Fixed data-2
A0 to DC			Fixed data-1 (Initialized data)
DD			Fixed data-2
DE to FF			Fixed data-1 (Initialized data)

7. 1E Page table

Note 1: If reading/writing data on pages 1E, set data: 01 to page: 0, address: 10, and then select pages: E. By this data setting, the pages 1E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the E, F, 14, 19, 1E, 1F Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of E, F, 14, 19, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00			Fixed data-2
01 to 06			Fixed data-1 (Initialized data)
07			Fixed data-2
08			
09 to 17			Fixed data-1 (Initialized data)
18			Fixed data-2
19			
1A			
1B			
1C			
1D			
1E			
1F			
20 to 91			Fixed data-1 (Initialized data)
92			Fixed data-2
93 to AC			Fixed data-1 (Initialized data)
AD			Fixed data-2
AE to C4			Fixed data-1 (Initialized data)
C5			Fixed data-2
C6			
C7 to C9			Fixed data-1 (Initialized data)
CA			Fixed data-2
CB to D1			Fixed data-1 (Initialized data)
D2			Fixed data-2
D3			
D4			
D5			
D6 to D8			Fixed data-1 (Initialized data)
D9			Fixed data-2
DA			
DB			
DC			
DD to FF			Fixed data-1 (Initialized data)

8. 1F Page table

Note 1: If reading/writing data on pages 1F, set data: 01 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 1F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (“Refer to 1. Initializing the E, F, 14, 19, 1E, 1F Page Data”)
Fixed data-2: Modified data. (“Refer to 2. Modification of E, F, 14, 19, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00, 01			Fixed data-1 (Initialized data)
02			Fixed data-2
03 to 19			Fixed data-1 (Initialized data)
1A			Fixed data-2
1B			
1C to 70			Fixed data-1 (Initialized data)
71			Fixed data-2
72 to AB			Fixed data-1 (Initialized data)
AC			Fixed data-2
AD			
AE to B1			Fixed data-1 (Initialized data)
B2			Fixed data-2
B3 to B6			Fixed data-1 (Initialized data)
B7			Fixed data-2
B8 to CB			Fixed data-1 (Initialized data)
CC			Fixed data-2
CD to E6			Fixed data-1 (Initialized data)
E7			Fixed data-2
E8			
E9 to FF			Fixed data-1 (Initialized data)

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of “VIDEO SYSTEM ADJUSTMENTS” are satisfied. (Except “33MHz/27MHz Origin Oscillation Check”)
Check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

1. 33MHz/27MHz Origin Oscillation Check (VC-378 board) (33MHz: NTSC/27MHz: PAL)

Check the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	R3209 (Pin ㊷ of IC3201) on VC-378 board
Measuring Instrument	Frequency counter
Specified value	f = 33000000 ± 664 Hz (NTSC) f = 27000000 ± 542 Hz (PAL)

Note: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting

1) POWER .... CAMERA-TAPE mode

Checking method:

1) Check that the frequency (f) satisfies the specified value.

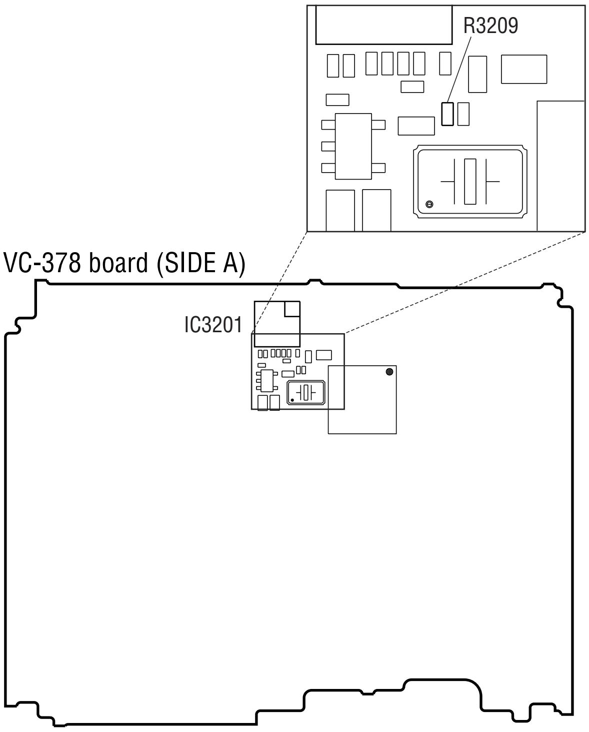


Fig. 6-1-8

2. HALL Adjustment RadarW

For detecting the position of lens iris and ND filter, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 1)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	13, 14, 17 to 19
Specified value	D4 to DC during IRIS CLOSE 24 to 2C during IRIS OPEN

Note 1: Check that the data of page: 0, address: 10 is “00”
Note 2: Check that the data of page: 6, address: 02 is “00”
If not, select page: 6, address: 01, set data: 00, and press the PAUSE button.
Note 3: Check that the data of page: 0, address: 02 is “06”
Note 4: The right two digits of the page: 1 displayed data of the adjusting remote commander.
1 : 00 : XX
Displayed data

Switch setting

1) POWER .... CAMERA-TAPE mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	6D	Press PAUSE button. (Note 5)
3	6	02		Check the data changes to “01”.
4	6	01	00	Press PAUSE button.

Note 5: The adjustment data will be automatically input to page: F, address: 13, 14, 17 to 19.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	
2	6	01	01	Press PAUSE button.
3	6	01	03	Press PAUSE button.
4	1			Check that the displayed data (Note 4) during IRIS CLOSE satisfied the specified value.
5	6	01	01	Press PAUSE button.
6	1			Check that the displayed data (Note 4) during IRIS OPEN satisfied the specified value.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	03	00	
3	0	01	00	

3. MR Adjustment RadarW

The inner focus lens MR adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	58, 5A to 65
Specified value 1	40 to C0
Specified value 2	03 to 78
Specified value 3	88 to FD

Note 1: Perform the adjustment with the lens in horizontal state.
Note 2: Perform “Flange Back Adjustment” after this adjustment.
Note 3: Check that the data of page: 0, address: 10 is “00”.
Note 4: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting

1) POWER .... CAMERA-TAPE mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	BD	Press PAUSE button. (Note 5)
3	6	02		Check the data changes to “01”.
4	F	5A 5B 5C 5D		Check that the data of each address satisfied the specified value 1.
5	F	5E 60 62 64		Check that the data of each address satisfied the specified value 2.
6	F	5F 61 63 65		Check that the data of each address satisfied the specified value 3.

Note 5: The adjustment data will be automatically input to page: F, address: 58, 5A to 65.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	0	01	00	

4. Flange Back and Zoom Lever Center Adjustment

RadarW (Using the minipattern box or flange back adjustment jig)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for minipattern box (Note 1) or flange back adjustment jig
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	11, 48 to 58
Specified value	Data of page: F, address: 57 is “00” to “0B” Data of page: 6, address: 0C is “00”

Note 1: Dark Siemens star chart.
Note 2: Perform “HALL Adjustment” and “MR Adjustment” before this adjustment.
Note 3: Perform the adjustment with the lens in horizontal state.
Note 4: Check that the data of page: 0, address: 10 is “00”.
Note 5: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.
Note 6: Don't touch the zoom lever during adjustment.

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) COLOR SLOW S (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	E	FD		Set the bit value of bit4 is “1”, and press PAUSE button. (Note 7)
3	6	01	13	Press PAUSE button.
4				Wait for 2 seconds.
5	6	01	27	Press PAUSE button. (Note 8)
6	6	02		Check the data changes to “01”.
7	6	0C		Check the data is “00”.
8	F	57		Check the data is “00” to “0B”.

Note 7: For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.
Note 8: The adjustment data will be automatically input to page: F, address: 11, 48 to 58.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	E	FD		Set the bit value of bit4 is “0”, and press PAUSE button. (Note 7)
5	0	01	00	
6				Perform “Flange Back Check”.

Preparation (Using the minipattern box)

1) The minipattern box is installed as shown in the following figure.
   Note 9: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of lens of camera is less than 3 cm.
3) Make the height of minipattern box and the camera equal.
4) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
5) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Specified voltage: The specified voltage varies according to the minipattern box, so adjustment the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

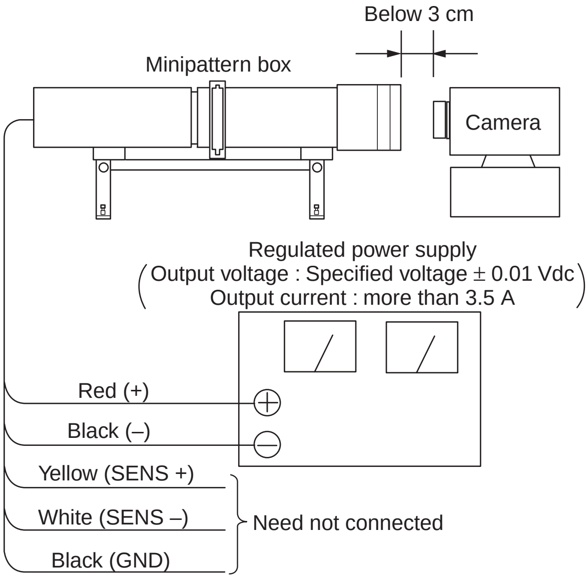


Fig. 6-1-9

Preparation (Using the flange back adjustment jig) (Luminance: about 300 lux)

1) Install the flange back adjustment jig so that the distance between it and the front of lens of camera is less than 3 cm.
2) Make the height of flange back adjustment jig and the camera equal.
3) Check that the center of chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

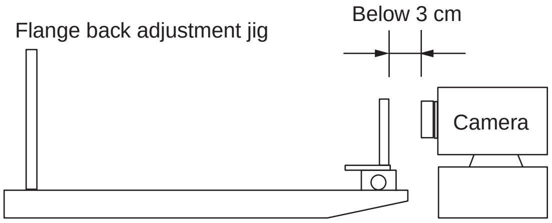


Fig. 6-1-10

5. Flange Back and Zoom Lever Center Adjustment (Using the flange back adjustment chart and subject more than 500 m away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

5-1. Flange Back Adjustment (1) RadarW

Subject	Flange back adjustment chart (2.0 m from the front of lens) (Luminance: 300 to 400 lux)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	11, 48 to 58
Specified value	Data of page: F, address: 57 is “00” to “0B” Data of pege: 6, address: 0C is “00”

Note 1: Perform “HALL Adjustment” and “MR Adjustment” before this adjustment.

Note 2: Perform the adjustment with the lens in horizontal state.

Note 3: Check that the data of page: 0, address: 10 is “00”.

Note 4: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.

Note 5: Don't touch the zoom lever during adjustment.

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) COLOR SLOW S (Menu setting) .... OFF

Preparations before adjustments:

1) Check that the center of Flange back adjustment chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	E	FD		Set the bit value of bit4 is “1”, and press PAUSE button. (Note 6)
3	6	01	13	Press PAUSE button.
4				Wait for 2 seconds.
5	6	01	15	Press PAUSE button. (Note 7)
6	6	02		Check the data changes to “01”.
7	6	0C		Check the data is “00”.
8	F	57		Check the data is “00” to “0B”.

Note 6: For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.

Note 7: The adjustment data will be automatically input to page: F, address: 11, 48 to 58.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	E	FD		Set the bit value of bit4 is “0”, and press PAUSE button. (Note 6)
5	0	01	00	
6				Perform “Flange Back Adjustment (2)”.

5-2. Flange Back Adjustment (2) RadarW

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500 m away (Subject with clear contrast such as buildings, etc.)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	11, 48 to 58
Specified value	Data of page: F, address: 57 is“00” to “0B” Data of page: 6, address: 0C is“00”

Note 1: Perform the adjustment with the lens in horizontal state.
Note 2: Check that the data of page: 0, address: 10 is “00”.
Note 3: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.
Note 4: Don't touch the zoom lever during adjustment.

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) COLOR SLOW S (Menu setting) .... OFF

Preparations before adjustments:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away.
(subjects with clear contrast such as building, etc.)
(Nearby subjects less than 500 m away should not be in the screen)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	13	Press PAUSE button.
3				Wait for 2 seconds.
4				Place ND filter on the lens so that the optimum image is obtain.
5	6	01	29	Press PAUSE button. (Note 5)
6	6	02		Check the data changes to “01”.
7	6	0C		Check the data is “00”.
8	F	57		Check the data is “00” to “0B”.

Note 5: The adjustment data will be automatically input to page: F, address: 11, 48 to 58.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	0	01	00	
5				Perform “Flange Back Check”.

6. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Note 1: Check that the data of page: 0, address: 10 is “00”.

Switch setting

1) POWER .... CAMERA-TAPE mode

Note 2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page: 1 of the adjusting remote commander.

1 : 00 : XX
Odd: Focused
Even: Unfocused

Preparations before adjustments:

1) Place the Siemens star 2.0 m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.

Checking method:

Order	Page	Address	Data	Procedure
1	6	40	01	
2	6	41	01	
3				Shoot the Siemens star with the zoom TELE end.
4				Turn on the auto focus.
5	0	03	0F	
6	1			Check that the lens is focused. (Note 2)
7	6	21	10	
8				Shoot the Siemens star with the zoom WIDE end.
9				Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	21	00	
2	6	40	00	
3	6	41	00	
4	0	03	00	

7. Picture Frame Setting (Color reproduction adjustment frame)

Subject	Color bar chart (Color reproduction adjustment frame) (1 m (PTB-450) or 40 cm (PTB-1450) from the front of lens)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope and monitor TV
Specified Value	A=B, C=D, E=F

Note 1: Perform "Hall Adjustment" and "Flange Back Adjustment" before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is "00".

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting) .... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS (Menu Setting) .... MANUAL
6) WIDE SELECT 4: 3

Setting method:

Order	Procedure
1	Adjust the zoom and the camera direction, and set the specified position.
2	Mark the position of the picture frame on the monitor TV, and adjust the picture frame to the this position in following adjustment using "Color reproduction adjustment frame".

How to read the XH, XL, YH and YL data:

Order	Page	Address	Data	Procedure
1	0	03	18	
2	1			Read XH data and XL data. (Note 3)
3	0	03	22	
4	1			Read YH data and YL data. (Note 3)

Note 3: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX : XX
XL or YL data
XH or YH data

How to reset the zoom and focus when they deviated:

If the zoom and focus deviated due to some reason, reset them in the following method.

Order	Page	Address	Data	Procedure
1	6	90	XL	
2	6	91	XH	
3	6	92	YL	
4	6	93	YH	
5	6	01	79	Press PAUSE button.

How to release the picture frame setting:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	90	00	
3	6	91	00	
4	6	92	00	
5	6	93	00	

Check on the oscilloscope

1. Horizontal period

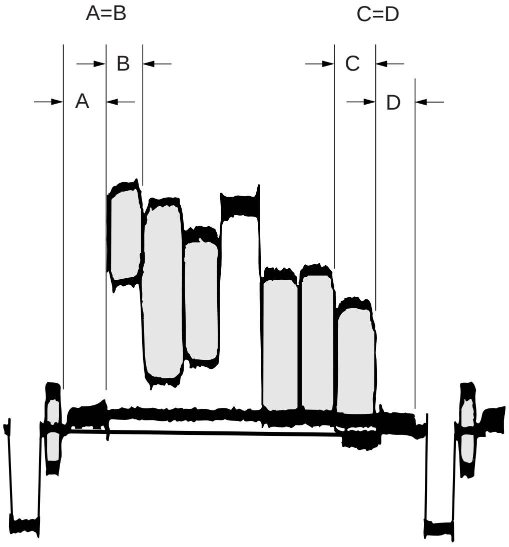


Fig. 6-1-11

2. Vertical period

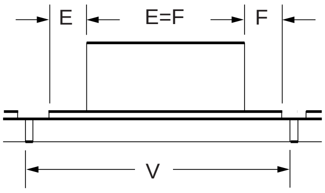


Fig. 6-1-12

Check on the monitor TV (Underscanned mode)

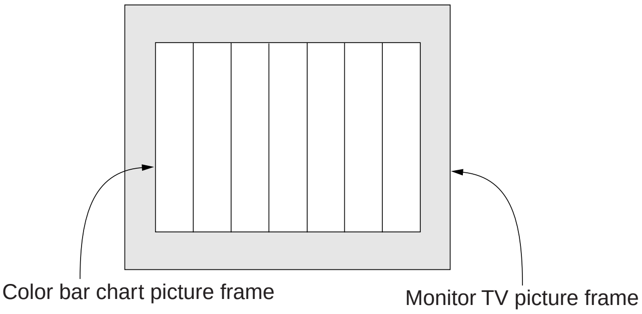


Fig. 6-1-13

8. Picture Frame Setting (Center frame)

Subject	Clear chart (Center frame) (1 m (PTB-450) or 40 cm (PTB-1450) from the front of lens)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Monitor TV
Specified Value	A clear chart must be shot in larger size than nine grids in the center of frame shown on the screen. (Fig. 6-1-15)

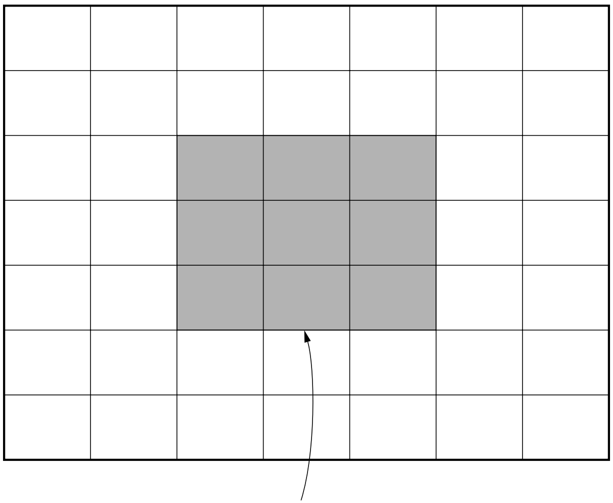
Note: Check that the data of page: 0, address: 10 is “00”.

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) ZOOM .... WIDE end
4) DIGITAL ZOOM (Menu setting) .... OFF
5) STEADY SHOT (Menu setting) .... OFF
6) FOCUS (Menu Setting) .... MANUAL
7) WIDE SELECT 4: 3

Setting method:

Order	Page	Address	Data	Procedure
1				Shoot a clear chart in the center of screen with the zoom at WIDE end.
2	0	01	01	
3	E	EF	91	Press PAUSE button.
4				Check that a clear chart is shot in larger size than nine grids in the center of frame shown on the screen.
5	E	EF	00	Press PAUSE button.
6	0	01	00	
7				In the following adjustment, if the “Center frame” is used, adjust the clear chart to this position.



A clear chart must be shot in larger size than central nine grids.

Fig.6-1-14

9. F No. & ND Light Quality Standard Data Input

RadarW

Correct the lens iris and the dispersion of the ND filter light quality.

Subject	Clear chart (Center frame)
Adjustment Page	F
Adjustment Address	1C to 29

Note 1: Perform “Mechanical Shutter Adjustment” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 4: If the pattern box (PTB-450) is used, the stability of brightness is reduced, and thus the adjustment value will be shifted a little.
The use of small pattern box (PTB-1450) is recommended.

Switch setting:

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) ZOOM .... WIDE end
4) DIGITAL ZOOM (Menu setting) .... OFF
5) STEADYSHOT (Menu setting) .... OFF
6) FOCUS (Menu setting) .... MANUAL
7) WIDE SELECT 4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “Center frame”. If not, perform “8. Picture Frame Setting (Center Frame)”.
2	0	01	01	
3	6	01	BB	Press PAUSE button. (Note 5)
4	6	02		Check the data changes to “01”.
5	6	0C		Check the data is “00”.

Note 5: The adjustment data will be automatically input to page: F, address: 1C to 29.

Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	

10. MAX GAIN Adjustment

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Center frame)
Adjustment Page	F
Adjustment Address	2C

Note 1: Perform "Flange Back and Zoom Lever Center Adjustment" before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE button.

Note 4: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Note 5: If the pattern box (PTB-450) is used, the stability of brightness is reduced, and thus the adjustment value will be shifted a little.
The use of small pattern box (PTB-1450) is recommended.

Switch setting

1)	POWER	CAMERA-TAPE mode
2)	NIGHTSHOT PLUS	OFF
3)	ZOOM	WIDE end
4)	DIGITAL ZOOM (Menu setting)	OFF
5)	STEADY SHOT (Menu setting)	OFF
6)	FOCUS (Menu setting)	MANUAL
7)	WIDE SELECT	4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Center Frame". If not, perform "8. Picture Frame Setting (Center Frame)"
2	0	01	01	
3	6	D0		Set the following data. 24: NTSC model 21: PAL model
4	6	D1	00	
5	6	01	6F	Press PAUSE button. (Note 6)
6	6	02		Check the data changes to "01".

Note 6: The adjustment data will be automatically input to page: F, address: 2C.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	

11. Mechanical Shutter Adjustment

Adjustment Page	F
Adjustment Address	76 to 8B

Note 1: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: F, address: 76 to 8B.

Note: Press the PAUSE button of the adjustment remote commander each time to set data.

Address	Data
76	50
77	93
78	3D
79	8D
7A	35
7B	99
7C	31
7D	83
7E	2D
7F	7B
80	60
81	73
82	77
83	72
84	60
85	1C
86	80
87	80
88	80
89	80
8A	80
8B	82

3) Select page: 0, address: 01, and set data: 00.

12. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V OUT jack or A/V jack (75 Ω terminated)
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	37, 39, 40, 41
Specified Value	All color luminance points should settle within each color reproduction frame.

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Perform “Flange Back Adjustment” before this adjustment.

Note 3: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting:

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting).................................... OFF
4) STEADYSHOT (Menu setting) .... OFF
5) FOCUS (Menu setting)... MANUAL
6) WIDE SELECT 4: 3

Adjusting method:

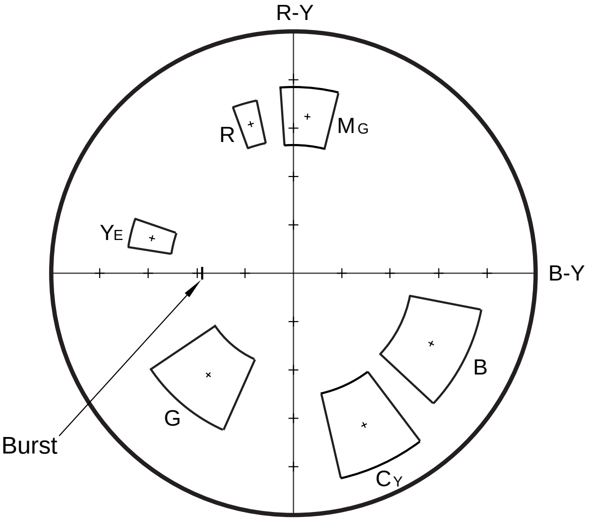
Order	Page	Address	Data	Procedure
1				Check that the picture frame is “Color Reproduction Adjustment Frame”. If not, perform “7. Picture Frame Setting (Color Reproduction Adjustment Frame)”
2	0	01	01	
3	6	9D		Set the following data. 27: NTSC model 22: PAL model
4	6	01	3D	Press PAUSE button.
5	F	F0		Set the following data, and press PAUSE button. 37: NTSC model B7: PAL model
6				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
7	F	37 39 40 41		Change the data and settle each color luminance point in each color reproduction frame. (Note 4)

Note 4: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses. If not, the new data will not be written to the memory.

Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	9D	00	
3	0	01	00	

NTSC model



PAL model

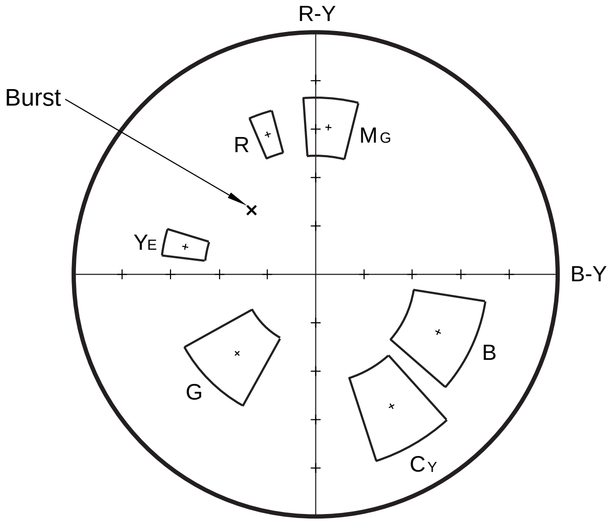


Fig. 6-1-15

13. Color Reproduction Check RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V OUT jack or A/V jack (75 Ω terminated)	Displayed data of page: 1 (Note 4)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	All color luminance points should settle within each color reproduction frame.	bit15 is “1”

Note 1: Perform “Color Reproduction Adjustment” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX
Displayed data

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting).................................... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS (Menu setting).. MANUAL
6) WIDE SELECT 4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “Color Reproduction Adjustment Frame”. If not, perform “7. Picture Frame Setting (Color Reproduction Adjustment Frame)”
2	0	01	01	
3	6	9D		Set the following data. 27: NTSC model 22: PAL model
4	0	03	33	
5	6	01	4D	Press PAUSE button.
6	6	02		Check the data changes to “01”.
7	1			Check that bit15 of the display data (Note 4) is “1”. (Note 5)

Note 5: When bit15 of the display data is “1”, the display data is“8000” to “FFFF”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	9D	00	
3	0	03	00	
4	0	01	00	

14. Picture Frame Setting (All white frame)

Subject	Clear chart (All white frame) (1 m (PTB-450) or 40 cm (PTB-1450) from the front of lens)
Measurement Point	Video terminal of A/V OUT jack or A/V jack (75 Ω terminated)
Measuring Instrument	Monitor TV
Specified Value	Only the clear chart must be shot (entire screen is white).

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX : XX
XL or YL data
XH or YH data

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting) .... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS .... MANUAL
6) WIDE SELECT 4:3

Setting method:

Order	Page	Address	Data	Procedure
1				While observing the TV monitor screen, adjust the zoom to TELE side from WIDE side, and stop it when the black frame of the chart disappears.
2				Check that whole of the screen is white.
3	0	03	18	
4	1			Read XH data and XL data. (Note 2)
5	0	03	22	
6	1			Read YH data and YL data. (Note 2)
7	0	03	00	
8				In the following adjustment, if the “All white frame” is used, adjust the clear chart to this position.

How to release the zoom and focus when they deviated:
If the zoom and focus deviated due to some reason, reset them in the following method.

Order	Page	Address	Data	Procedure
1	6	90	XL	
2	6	91	XH	
3	6	92	YL	
4	6	93	YH	
5	6	01	79	Press PAUSE button

Processing after Completing Adjustment:
Reset the data setting after the adjustment finished.

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	90	00	
3	6	91	00	
4	6	92	00	
5	6	93	00	

15. Auto White Balance Standard Data Input RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (All white frame)	
Adjustment Page	F	14
Adjustment Address	2E to 31	E8 to F3

Note 1: Perform “Color Reproduction Adjustment” before this adjustment.

Note 2: If reading/writing data on pages 14, set data: 01 to page: 0, address: 10, and then select pages: 4. By this data setting, the pages 14 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting) .... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS (Menu setting) .... MANUAL
6) WIDE SELECT 4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “14. Picture Frame Setting (All White Frame)”
2	0	01	01	
3				Wait for 2 seconds.
4	6	01	11	Press PAUSE button.
5	6	01	0B	Press PAUSE button. (Note 4)
6	6	02		Check the data changes to “01”.

Note 4: The adjustment data will be automatically input to page: F, address: 2E to 31 and page: 14, address: E8 to F3.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	

16. LV Standard Data Input RadarW

Adjust the normal coefficient of the light value at 3200K.

Subject	Clear chart (All white frame)
Measurement Point	Displayed data of page: 1 (Note 4)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	2A, 2B
Specified Value	0FE0 to 1020

Note 1: Perform “F No. & ND Light Quality Standard Data Input” and “Auto White Balance Standard Data Input” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.

Note 4: Check that the data of page: 0, address: 02 is “06”.

Note 5: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX
Displayed data

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting) .... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS (Menu setting) .... MANUAL
6) WIDE SELECT 4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “14. Picture Frame Setting (All White Frame)”
2	0	01	01	
3				Wait for 6 seconds.
4	6	01	0D	Press PAUSE button. (Note 6)
5	6	02		Check the data changes to “01”.
6	0	03	1E	
7	1			Check that the displayed data (Note 5) satisfied the specified value.

Note 6: The adjustment data will be automatically input to page: F, address: 2A, 2B.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	03	00	
3	0	01	00	

17. Auto White Balance Adjustment RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (All white frame)	
Filter	Filter C14 for color temperature correction	
Adjustment Page	F	14
Adjustment Address	32 to 35, 44 to 47	F4 to FF

Note 1: Perform “F No. & ND Light Quality Standard Data Input” and “Auto White Balance Standard Data Input” before this adjustment.
Note 2: If reading/writing data on pages 14, set data: 01 to page: 0, address: 10, and then select pages: 4. By this data setting, the pages 14 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.
Note 3: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE button.

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting) .... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS (Menu setting) .... MANUAL
6) WIDE SELECT 4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “14. Picture Frame Setting (All White Frame)”
2				Place the C14 filter on the lens.
3	0	01	01	
4	F	44	2C	Press PAUSE button.
5	F	45	E0	Press PAUSE button.
6	F	46	59	Press PAUSE button.
7	F	47	00	Press PAUSE button.
8	6	01	83	Press PAUSE button.
9	6	01	81	Press PAUSE button. (Note 4)
10	6	02		Check the data changes to “01”.

Note 4: The adjustment data will be automatically input to page: F, address: 32 to 35, 44 to 47 and page: 14, address: F4 to FF.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Remove the C14 filter on the lens.

18. Auto White Balance Check RadarW

Subject	Clear chart (All white frame)
Filter	ND filter 1.0, 0.4 and 0.1
Measurement Point	Displayed data of page: 1 (Note 3)
Measuring Instrument	Adjusting remote commander
Specified Value	8000 to 8BC0

Note 1: Perform “Auto White Balance Adjustment” before this adjustment.
Note 2: Check that the data of page: 0, address: 10 is “00”.
Note 3: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX
Displayed data

Switch setting

1) POWER .... CAMERA-TAPE mode
2) NIGHTSHOT PLUS .... OFF
3) DIGITAL ZOOM (Menu setting) .... OFF
4) STEADY SHOT (Menu setting) .... OFF
5) FOCUS (Menu setting) .... MANUAL
6) WIDE SELECT 4: 3

Checking method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “14. Picture Frame Setting (All White Frame)”
OUTDOOR white balance check				
2	6	01	4F	Press PAUSE button.
3	0	03	33	
4	1			Check that bit15 of the display data (Note 3) is “1”. (Note 4)
5	6	01	00	Press PAUSE button.
INDOOR white balance check				
6	6	01	0F	Press PAUSE button.
7	1			Check that bit15 of the display data (Note 3) is “1”. (Note 4)
8	6	01	00	Press PAUSE button.
InOut data check				
9				Place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
10	0	03	06	
11	1			Check that the displayed data (Note 3) satisfied the specified value.
12				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

Note 4: When bit15 of the display data is “1”, the display data is “8000” to “FFFF”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	03	00	

19. Steady Shot Check RadarW

Precautions on the Parts Replacement

There are two types of repair parts.

Type A ENC03MA
Type B ENC03MB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 1)
Measuring Instrument	Adjusting remote commander
Specified value	PITCH data: 2680 to 5080 YAW data: 2680 to 5080

Note 1: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1 : XX : XX
Displayed data

Note 2: Check that the data of page: 0, address: 10 is “00”.

Switch setting

1) ZOOM .... TELE end
2) STEADY SHOT (Menu setting) .... ON

Checking method:

Order	Page	Address	Data	Procedure
PITCH sensor output check (SE601 of SI-042 board)				
1	0	03	11	
2	1			With the set in still state, check that the displayed data (Note 1) satisfies the PITCH data specified value.
YAW sensor output check (SE602 of SI-042 board)				
3	0	03	12	
4	1			With the set in still state, check that the displayed data (Note 1) satisfies the YAW data specified value.
5	0	03	00	
Steady shot operation check				
6				Shake the set vertically and horizontally to check that the steady shot function operates normally.

1-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

Before perform the electronic viewfinder system adjustments, check that the data of page: 0, address: 10 is “00”. If not, select page: 0, address: 10, and set the data “00”.

Note 1: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 2: Perform the following data setting before the viewfinder system adjustments.
1) Select page: 3, address: C4, and set data: 67.
2) Select page: 3, address: C5, and set data: 01.
Reset the data after completing adjustment.
1) Select page: 3, address: C4, and set data: 00.
2) Select page: 3, address: C5, and set data: 00.

1. EVF Automatic Adjustment (LB-109 board)

RadarW

This adjustment does the following items automatically.
VCO Adjustment
Contrast Adjustment

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	3F, 40 (VCO Adjustment) 47 (Contrast Adjustment)

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting

WIDE SELECT 4: 3

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	71	00	Press PAUSE button.
3	3	01	5A	Press PAUSE button. (Note 3)
4	3	02		Check the data changes to “00”.
5	3	03		Check the data is “00”. (Note 4)
6	C	3F		Read the data and this data is named D_{3F}.
7				Convert D_{3F} to decimal notation, and obtain D_{3F}’. (Note 5)
8				Calculate D_{40}’ using following equations. (decimal calculation) D_{40}’ = D_{3F}’ + 10 (NTSC model) D_{40}’ = D_{3F}’ – 10 (PAL model)
9				Convert D_{40}’ to a hexadecimal number, and obtain D_{40}. (Note 5)
10	C	40	D_{40}	Press PAUSE button.
11	C	71	41	Press PAUSE button.
12	0	01	00	

Note 3: The adjustment data will be automatically input to page: C, address: 3F and 47.

Note 4: If the data change to “01”, adjustment has error. Contents of error is written into page: 3, address: C6. See the following table.

Note 5: Refer to table 6-4-1. “Hexadecimal-decimal conversion table”.

Data of page: 3, address: C6	Contents of error
5E	VCO adjustment error
61	Contrast adjustment error

2. White Balance Adjustment (LB-109 board) (Except DCR-HC39E)

Correct the white balance.
If deviated, the EVF screen color cannot be reproduced.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	45, 46
Specified Value	EVF screen must not be colored

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC7001

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	45	90	Press PAUSE button.
3	C	46	7C	Press PAUSE button.
4				Check that the EVF screen is not colored. If not colored, proceed to step 6.
5	C	45 46		Change the data so that the EVF screen is not colored. (Note 3)
6	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE button each time to set the data.

1-5. LCD SYSTEM ADJUSTMENTS

Before perform the LCD system adjustments, check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

Note 1: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.
Note 2: Set the “LCD BRIGHT”, “LCD COLOR” to the center with the menu settings of the touch panel.
Note 3: Open the LCD panel during the LCD system adjustment.

1. LCD Automatic Adjustment (PD-238 board)

RadarW

This adjustment does the following items automatically.
VCO Adjustment
Contrast Adjustment

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	50, 51 (VCO Adjustment) 58 (Contrast Adjustment)

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: Perform “IC4701 Automatic Adjustment” before this adjustment.
Note 3: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting
WIDE SELECT 16: 9

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	70	00	Press PAUSE button.
3	3	01	5A	Press PAUSE button. (Note 4)
4	3	02		Check the data changes to “00”.
5	3	03		Check the data is “00”. (Note 5)
6	C	50		Read the data and this data is named D_{50}.
7				Convert D_{50} to decimal notation, and obtain D_{50}’. (Note 6)
8				Calculate D_{51}’ using following equations. (decimal calculation) D_{51}’ = D_{50}’ + 10 (NTSC model) D_{51}’ = D_{50}’ – 10 (PAL model)
9				Convert D_{51}’ to a hexadecimal number, and obtain D_{51}. (Note 6)
10	C	51	D_{51}	Press PAUSE button.
11	C	70	41	Press PAUSE button.
12	0	01	00	

Note 4: The adjustment data will be automatically input to page: C, address: 50 and 58.
Note 5: If the data change to “01”, adjustment has error. Contents of error is written into page: 3, address: C6. See the following table.
Note 6: Refer to table 6-4-1. “Hexadecimal-decimal conversion table”.

Data of page: 3, address: C6	Contents of error
58	VCO adjustment error
60	Contrast adjustment error

2. V-COM Adjustment (PD-238 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will be move, producing flicker and conspicuous vertical lines.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	52
Specified Value	The brightness difference between the section-A and section-B is minimum

Note 1: Perform "LCD Automatic Adjustment" before this adjustment.
Note 2: Check that the data of page: 0, address: 10 is "00".

Switch setting
LCD BACKLIGHT .... ON

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	61	CD	Press PAUSE button.
3	C	52		Change the data so that brightness of the section A and section B is equal.
4	C	52		Subtract 7 from the data.
5	C	52		Press PAUSE button.
6	C	61	C5	Press PAUSE button.
7	0	01	00	

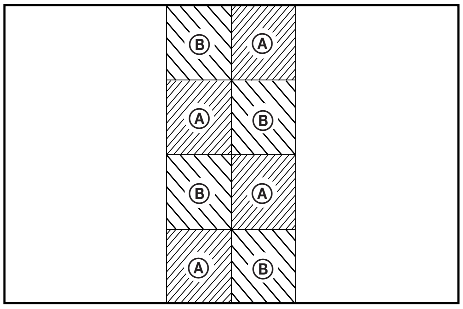


Fig. 6-1-16

3. Transmissive Mode White Balance Adjustment (PD-238 board)

Correct the white balance at transmissive mode.
If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	56, 57
Specified Value	LCD screen must not be colored

Note 1: Check that the data of page: 0, address: 10 is "00".
Note 2: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD block
2. Light induction plate
3. IC602

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	56	88	Press PAUSE button.
3	C	57	71	Press PAUSE button.
4				Check that the LCD screen is not colored. If not colored, proceed to step 6.
5	C	56 57		Change the data so that the LCD screen is not colored. (Note 3)
6	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE button each time to set the data.

4. Reflective Mode White Balance Adjustment RadarW (PD-238 board)

Correct the white balance at reflective mode.
If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	7B, 7C

Note 1: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	C4	59	
3	3	C5	02	
4	3	0C	20	Press PAUSE button.
5	3	22	0F	Press PAUSE button.
6	3	01	66	Press PAUSE button. (Note 2)
7	3	02		Check the data changes to “00”.
8	3	03		Check the data is “00”. (Note 4)
9	3	01	67	Press PAUSE button. (Note 3)
10	3	02		Check the data changes to “00”.
11	3	03		Check the data is “00”. (Note 4)
12	3	C4	00	
13	3	C5	00	
14	3	0C	00	Press PAUSE button.
15	3	22	00	Press PAUSE button.
16	0	01	00	

Note 2: The adjustment data will be automatically input to page: C, address: 7B.

Note 3: The adjustment data will be automatically input to page: C, address: 7C.

Note 4: If the data is “01”, adjustment has error.

6-2. MECHANISM SECTION ADJUSTMENTS

On the mechanism section adjustment

For details of mechanism section adjustments, checks, and replacement of mechanism parts, refer to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL Ⅷ Z (Z200) Mechanism ".

Note: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

2-1. HOW TO ENTER RECORD MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, set data: 0C, and press the PAUSE button of the adjustment remote commander.
   (The mechanism enters the record mode automatically.)
   Note: The function buttons become inoperable.
5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

2-2. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, set data: 0B, and press the PAUSE button of the adjustment remote commander.
   (The mechanism enters the playback mode automatically.)
   Note: The function buttons become inoperable.
5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

2-3. TAPE PATH ADJUSTMENT

1. Preparation for Adjustment

1) Clean the tape running side (tape guide, drum, capstan shaft, pinch roller, etc.).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn the HOLD switch of the adjustment remote commander to the ON position.
4) Connect an oscilloscope to VC-378 board CN1007 via the CPC Connecting jigs. (J-6082-521-A, J-6082-564-A)
   Channel 1: VC-378 board, CN1007 Pin ① (Note)
   External trigger: VC-378 board, CN1007 Pin ②
   Note: Connect a 75 Ω resistor between pins ① of CN1007 and ③ (GND).
   75 Ω resistor (Parts code: 1-247-804-11)
5) Playback the alignment tape for tracking. (XH2-1)
6) Select page: 3, address: 33, and set data: 08.
7) Select page: 3, address: 26, set data: 31, and press the PAUSE button.
8) Check that the oscilloscope RF waveform is normal at the entrance and exit.
   If not normal, adjust according to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL Ⅷ Z (Z200) Mechanism " .

CN1007 of VC-378 board

Pin No.	Signal Name
1	RF MON
2	SWP
3	GND
4	XCS EEP
5	EEP SCK
6	EEP SO
7	EEP SI
8	GND

2. Procedure after operations

1) Connect the adjustment remote commander to the LANC jack and set the HOLD switch to the ON position.
2) Select page: 3, address: 26, set data: 00, and press the PAUSE button.
3) Select page: 3, address: 33, and set data: 00.

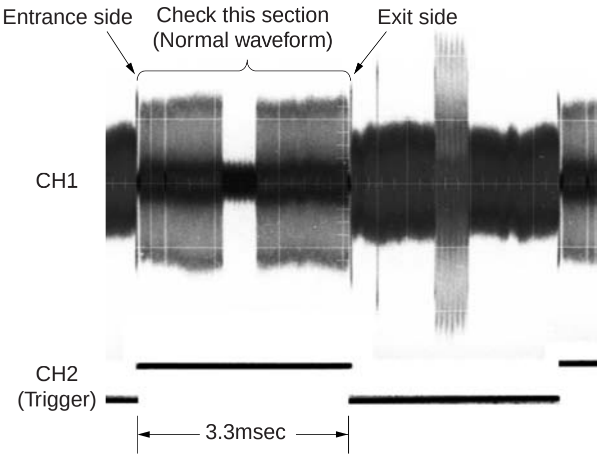


Fig. 6-2-1

6-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Pattern generator with video output terminal.
4) Audio generator
5) Audio level meter
6) Audio distortion meter
7) Audio attenuator
8) AC power adapter
9) Alignment tapes
    - Tracking standard (XH2-1)
      Parts code: 8-967-997-01
    - SW/OL standard (XH2-3)
      Parts code: 8-967-997-11
    - Audio operation check for NTSC (XH5-3)
      Parts code: 8-967-997-51
    - System operation check for NTSC (XH5-5)
      Parts code: 8-967-997-61
    - Audio operation check for PAL (XH5-3P)
      Parts code: 8-967-997-55
    - System operation check for PAL (XH5-5P)
      Parts code: 8-967-997-66
10) Adjustment remote commander (J-6082-053-B)
11) CPC connecting jigs
    - CPC-15 (J-6082-564-A)
    - I/F unit for LANC control (J-6082-521-A)

3-1-2. Precautions on Adjusting

Note: Before performing the adjustment, check the data of page: 0, address: 10 is “00”. If not, select page: 0, address: 00, and set data “00”.

1) The adjustments of this unit are performed in the VTR mode (PLAY/EDIT mode) or camera mode (CAMERA-TAPE mode).

3-1-3. Adjusting Connectors

The measuring point of the playback RF signal is CN1007 of VC-378 board. Connect the measuring instruments via the CPC connecting jigs (J-6082-521-A, J-6082-564-A). Refer to “MECHANISM SECTION ADJUSTMENT” for the measuring method. The following table lists the pin numbers and signal names of CN1007.

Pin No.	Signal Name
1	RF_MON
2	SWP
3	GND
4	XCS EEP
5	EEP SCK
6	EEP SO
7	EEP SI
8	GND

Table 6-3-1

3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 6-3-1, and perform the adjustments.

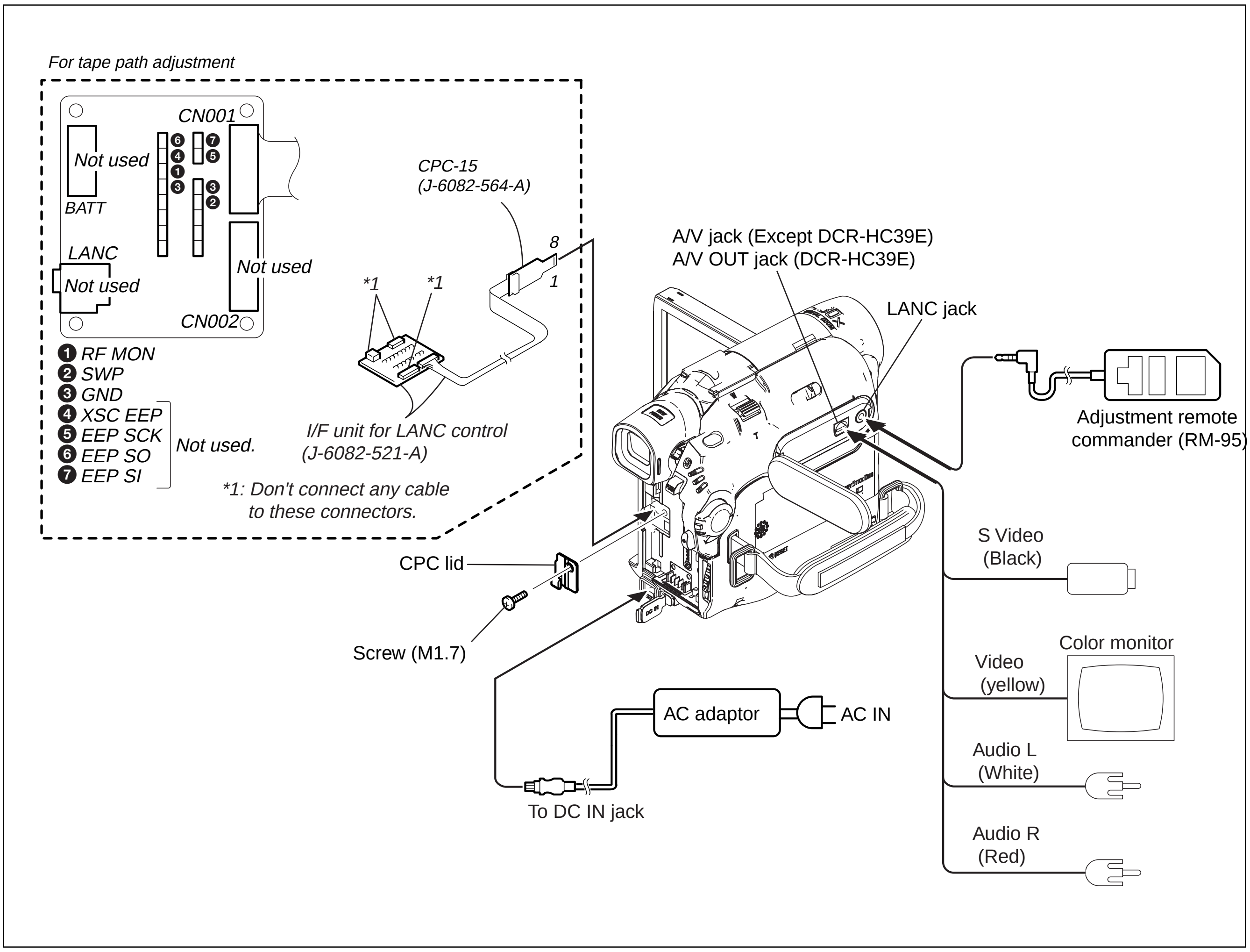

For tape path adjustment
CN001
Not used
BATT
LANC
Not used
Not used
CN002
❶ RF MON
❷ SWP
❸ GND
❹ XSC EEP
❺ EEP SCK
❻ EEP SO
❼ EEP SI
Not used.
CPC-15
(J-6082-564-A)
8
1
*1
*1
I/F unit for LANC control
(J-6082-521-A)
*1: Don't connect any cable to these connectors.
A/V jack (Except DCR-HC39E)
A/V OUT jack (DCR-HC39E)
LANC jack
Adjustment remote commander (RM-95)
S Video
(Black)
Color monitor
Video
(yellow)
Audio L
(White)
Audio R
(Red)
CPC lid
Screw (M1.7)
AC adaptor
AC IN
To DC IN jack

Fig. 6-3-1

3-1-5. Alignment Tapes

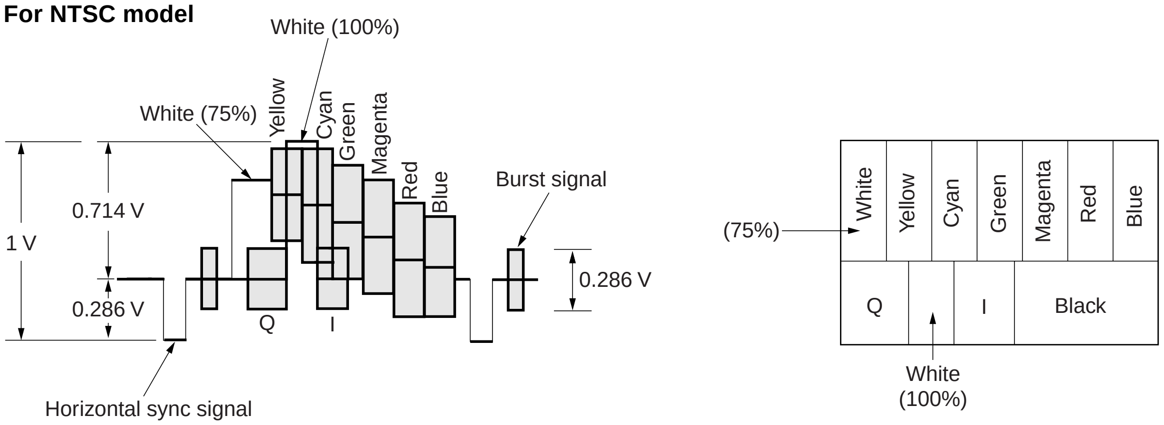
Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3(NTSC), XH5-3P(PAL))	Audio system adjustment
System operation check (XH5-5(NTSC), XH5-5P(PAL))	Operation check

Fig. 6-3-2 shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)

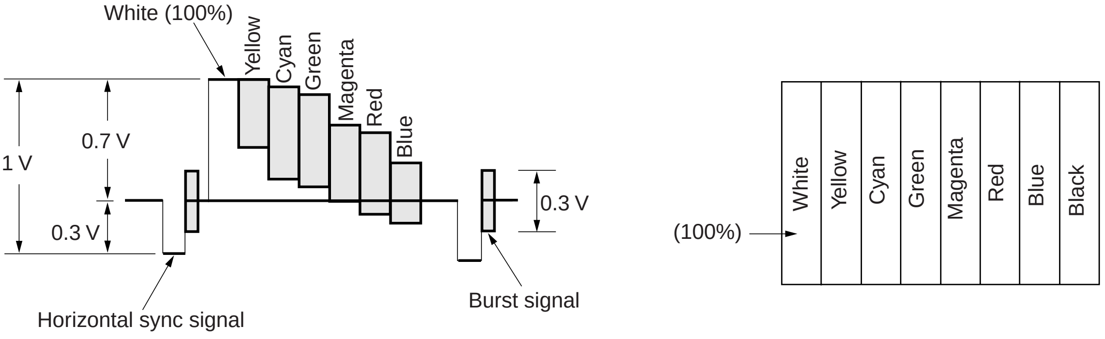
For NTSC model


White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
1 V
0.714 V
0.286 V
Q
I
0.286 V
Horizontal sync signal
(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
I
Black
White
(100%)

Color bar signal waveform

Color bar pattern

For PAL model


White (100%)
Yellow
Cyan
Green
Magenta
Red
Blue
1 V
0.7 V
0.3 V
0.3 V
Horizontal sync signal
Burst signal
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Color bar signal waveform

Color bar pattern

Fig. 6-3-2. Color bar signal of alignment tapes

3-1-6. Input/Output Level and Impedance

Video input/output
A/V jack
Video signal: 1 Vp-p, 75 Ω unbalanced, sync negative
S video input/output
A/V jack
Luminance signal: 1 Vp-p, 75 Ω unbalanced, sync negative
Chrominance signal: 0.286 Vp-p, 75Ω unbalanced (NTSC)
: 0.300 Vp-p, 75Ω unbalanced (PAL)

Audio input/output
A/V jack
Input level: 327mV
Input impedance: More than 47 kΩ
Output level: 327mV (at load impedance 47 kΩ)
Output impedance: Below 2.2 kΩ

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initialization of 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F Page Data

If the 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F page data is erased due to some reason, perform “1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 14, 18, 19, 1A, 1B, 1C, 1E, 1F PAGE DATA” of “CAMERA SYSTEM ADJUSTMENTS”.
Check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

2. Touch Panel Adjustment

Adjust the calibration of touch panel.

Mode	VTR stop (PLAY/EDIT mode)
Signal	Arbitrary
Adjustment Page	A
Adjustment Address	90 to 93

Note 1: This adjustment should be carried out upon completetion of the LCD system adjustments.
Note 2: Check that the data of page: 0, address: 10 is “00”.
Note 3: Check that a Memory Stick Duo is not insteted.
Note 4: Check that the LCD panel is not reverse mode.
Note 5: Adjustment must be performed while observing the LCD screen from the front.

Preparation:

Order	Page	Address	Data	Procedure
1	5	01	01	
2	5	05	00	
3	5	06	C7	
4	5	07	00	
5	5	08	00	
6	5	09	00	
7	5	0A	FF	
8	5	0B	00	
9	5	0C	00	
10	5	0D	00	
11	5	0E	01	
12	5	00	01	Press PAUSE button.
13				Check that the touch panel adjustment screen is displayed.
14				Perform “Adjusting method”.

Adjusting method:

1) Using a ball-point pen etc., push the center of “×” indicated in the part A.
2) Using a ball-point pen etc., push the center of “×” indicated in the part B.
3) Using a ball-point pen etc., push the center of “×” indicated in the part C.

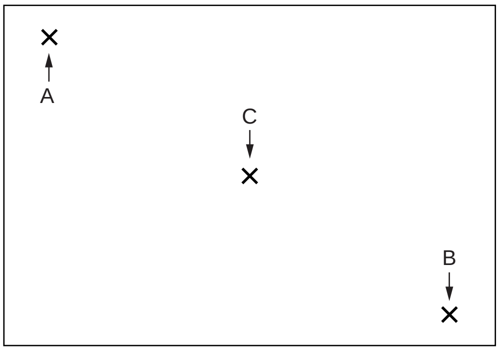


Fig. 6-3-3

3. Node Unique ID No. Input

Write the serial No. and model code to the EEPROM (nonvolatile memory).

In writing the serial No., a decimal number should be converted into a hexadecimal number.

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Perform “Node Unique ID No. Input” if the data on page C has been cleared and the node unique ID No. is not found.

Page	C
Address	E5, E6, E7

1) Select page: 0, address: 01, and set data: 01.
2) Read the serial No. from the model name label, and it is assumed to be D_1.
   Example: If serial No. is “77881”,
   $D_1 = 77881$
3) From Table 6-3-2, obtain D_2 and H_1 that correspond to D_1.
   Example: If $D_1 = 77881$,
   $D_2 = D_1 - 65536 = 12345$
   $H_1 = FE$

D_1 (decimal)	D_2 (decimal)	H_1 (hexadecimal) (Service model code)
00001 to 65535	D_1	FE
65536 to 131071	$D_1 - 65536$	FE
131072 to196607	$D_1 - 131072$	FE
196608 to 262143	$D_1 - 196608$	FE
262144 to 327679	$D_1 - 262144$	FE
327680 to 393215	$D_1 - 327680$	FE
393216 to 458751	$D_1 - 393216$	FE
458752 to 524287	$D_1 - 458752$	FE
524288 to 589823	$D_1 - 524288$	FE
589824 to 655359	$D_1 - 589824$	FE
655360 to 720895	$D_1 - 655360$	FE
720896 to 786431	$D_1 - 720896$	FE
786432 to 851967	$D_1 - 786432$	FE
851968 to 917503	$D_1 - 851968$	FE
917504 to 983039	$D_1 - 917504$	FE
983040 to 999999	$D_1 - 983040$	FE

Table 6-3-2

4) Enter H_1 to address: E5 on page: C.
   Example: If $H_1 = FE$,
   select page: C, address: E5, and set data: FE, then press the PAUSE button.
5) From Table 6-3-3, obtain the maximum decimal number less than D_2, and it is assumed to be D_3.
   Example: If $D_2 = 12345$.
   $D_3 = 12288$
6) From Table 6-3-3, obtain a hexadecimal number that corresponds to D_3, and it is assumed to be H_3.
   Example: If $D_3 = 12288$,
   $H_3 = 3000$
7) Caluculate D_4 using following equations (decimal caluculation). $(0 \leqq D_4 \leqq 225)$
   $D_4 = D_2 - D_3$
   Example: If $D_2 = 12345$ and $D_3 = 12288$,
   $D_4 = 12345 - 12288 = 57$
8) Convert D_4 into a hexadecimal number to obtain H_4. (See Table 6-4-1 “Hexadecimal - decimal conversion table” in 6-4. Service Mode)
   Example: If $D_4 = 57$,
   $H_4 = 39$
9) Enter higher two digits of H_3 to address: E6 on page: C.
   Example: If $H_3 = 3000$,
   select page: C, address: E6, and set data: 30, then press the PAUSE button.
10) Enter H_4 to address: E7 on page: C.
    Example: If $H_4 = 39$,
    select page: C, address: E7, and set data: 39, then press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Note: D_3: Decimal
H_3: Hexadecimal

Table 6-3-3

3-3. SERVO AND RF SYSTEM ADJUSTMENTS

Before perform the servo and RF system adjustments, check that the specified values of “33MHz/27MHz Origin Oscillation check” of “1-3. CAMERA SYSTEM ADJUSTMENTS” is satisfied.
Check that the data of page: 0, address: 10 is “00”. If not, select page: 0, address: 10, and set the data “00”.

Adjusting Procedure:

1. CAP FG duty adjustment
2. Switching position adjustment
3. Error rate check

1. CAP FG Duty Adjustment (VC-378 board)

RadarW

Set the CAP FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur in the LP mode.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	16
Specified value	The data of page: 3, address: 03 is “00”

Note 1: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting cassette.
2	0	01	01	
3	3	01	1B	Press PAUSE button.
4	3	02		Check the data changes in the following order “1B” → “2B” → “00”
5	3	03		Check the data is “00”. (Note 2)
6	0	01	00	

Note 2: If the data is “01”, adjustment has errors or the mechanism deck is defective.

2. Switching Position Adjustment (VC-378 board)

RadarW

Mode	VTR playback (PLAY/EDIT mode)
Signal	SW/OL standard (XH2-3)
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified value	The data of page: 3, address: 03 is “00”

Note 1: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL standard tape and enter the VTR stop mode.
2	0	01	01	
3	C	10	EE	Press PAUSE button.
4	3	21		Check the data is “02”. (Note 2)
5	3	01	0D	Press PAUSE button.
6	3	02		Check the data changes to “00”.
7	3	03		Check the data is “00”. (Note 3)
8	0	01	00	

Note 2: If the data is “72”, the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.
If the data is “62”, the tape end being played. After rewind the tape, perform step 5 and higher.

Note 3: If bit0 of the data is “1”, the EVEN channel is defective.
If bit1 of the data is “1”, the ODD channel is defective.
Contents of the defect is see written into page: C, address: 10 and 12. See following table.
(For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.)
If bit3 of the data is “1”, the tape end being played, so rewind the tape and perform the adjustment again.

When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEP ROM (IC5302) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC4201

When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into EEP ROM (IC5302) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC4201

3. Error Rate Check (VC-378 board) RadarW

Note: Check that the data of page: 0, address: 10 is “00”.

3-1. Preparations before adjustments

Mode	Camera recording (CAMERA-TAPE mode)
Subject	Arbitrary

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	C	0D	C8	Press PAUSE button.
4	0	10	00	
5				Record the camera signal for 2 minutes.

3-2. Error Rate Check

Mode	VTR playback (PLAY/EDIT mode)
Subject	Recorded signal at “Preparations before adjustments”
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	1C
Adjustment Address	B3 to C8
Specified value	The data of page: 3, address: 03 is “00”

Note 1: If reading/writing data on pages 1C, set data: 01 to page: 0, address: 10, and then select pages: C. By this data setting, the pages 1C can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Initial Value of Page 1C: Address: B3 to C8

Address	Initial value	Address	Initial value	Address	Initial value
B3	00	BB	00	C3	80
B4	00	BC	00	C4	00
B5	00	BD	00	C5	00
B6	00	BE	00	C6	00
B7	00	BF	00	C7	00
B8	80	C0	00	C8	00
B9	00	C1	00		
BA	00	C2	00		

Table 6-3-4

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Check that the data of page: 1C, address: B3 to C8 is the initial value. (See Table 6-3-4)
3				Playback the recorded signal at “Preparations before adjustments”.
4	3	01	40	Press PAUSE button.
5	3	02		Check the data changes to “00”.
6	3	03		Check the data is “00”. (Note 2)
7				Perform “Processing after Completing Adjustments”.

Note 2: If the data is other than “00”, Error rate is abnormal. For the contents of the abnormality, see the following table.

Data of page: 3, address: 03	Contents of defect
01	EVEN channel is abnormal.
02	ODD channel is abnormal.
03	EVEN channel and ODD channel are abnormal.

Note 3: If Error rate is abnormal, Check the use tape, clean the tape running surface. And after inputting initial values to page 1C: address: B3 to C8, perform re-adjustment. (See Table 6-3-4)

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	C	0D	00	Press PAUSE button.
4	0	10	00	
5	0	01	00	

3-4. VIDEO SYSTEM ADJUSTMENTS

Before perform the video system adjustments, check that the specified values of “33MHz/27MHz Origin Oscillation check” of “1-3. CAMERA SYSTEM ADJUSTMENTS” is satisfied.
Check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

Adjusting Procedure:

1. S VIDEO OUT Y level adjustment (1)
2. S VIDEO OUT chroma level adjustment (1)
3. S VIDEO OUT Y lebel adjustment (2)
4. S VIDEO OUT Y chroma adjustment (2)
5. IC4701 Automatic adjustment
6. VIDEO OUT level check

1. S VIDEO OUT Y Level Adjustment (1) (VC-378 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO plug of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	80
Specified value	Y level: A = 1000 ± 14 mVp-p Sync level: B = 286 ± 6 mVp-p (NTSC) B = 300 ± 6 mVp-p (PAL)

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting

1) DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	70	Press PAUSE button.
3	C	80		Change the data and set the Y signal level (A) to the specified value.
4	C	80		Press PAUSE button.
5				Check the sync signal level (B) to the specified value.
6	3	01	00	Press PAUSE button.
7	0	01	00	

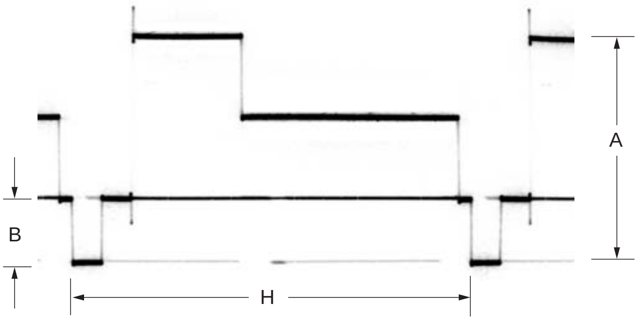


Fig. 6-3-4

2. S VIDEO OUT Chroma Level Adjustment (1) (VC-378 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO plug of A/V jack (75 Ω terminated) External trigger: Y signal terminal of S VIDEO plug of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	81, 82
Specified value	Cr level: A = 714 ± 14 mVp-p (NTSC) A = 715 ± 14 mVp-p (PAL) Cb level: B = 714 ± 14 mVp-p (NTSC) B = 715 ± 14 mVp-p (PAL) Burst level: C = 286 ± 6 mVp-p (NTSC) C = 300 ± 6 mVp-p (PAL)

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting

1) DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	70	Press PAUSE button.
3	C	81		Change the data and set the Cr signal level (A) to the specified value.
4	C	81		Press PAUSE button.
5	C	82		Change the data and set the Cb signal level (B) to the specified value.
6	C	82		Press PAUSE button.
7				Check the burst signal (C) to the specified value.
8	3	01	00	
9	0	01	00	

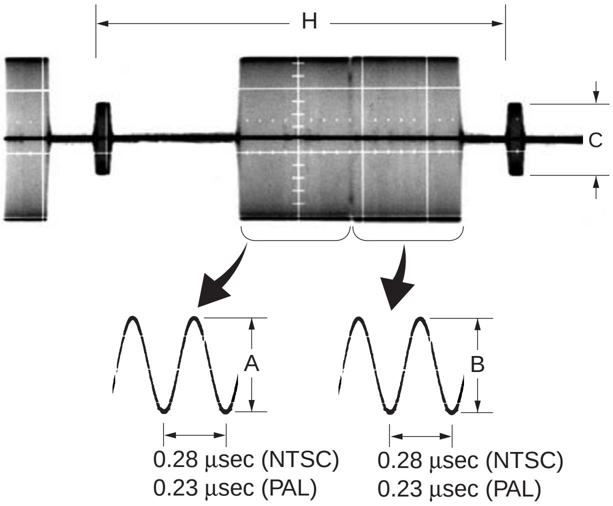


Fig. 6-3-5

3. S VIDEO OUT Y Level Adjustment (2) (VC-378 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO plug of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified value	A = 1000 ± 14 mVp-p

Note 1: Check that the data of page: 0, address: 10 is “00”.

Switch setting

1) DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	8	4C		Set the bit value of bit1 is “0”, and press PAUSE button. (Note 2)
3	3	01	71	Press PAUSE button.
4	C	25		Change the data and set the Y signal level (A) to the specified value.
5	C	25		Press PAUSE button.
6	3	01	00	Press PAUSE button.
7	8	4C		Set the bit value of bit1 is “1”, and press PAUSE button. (Note 2)
8	0	01	00	

Note 2: For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.

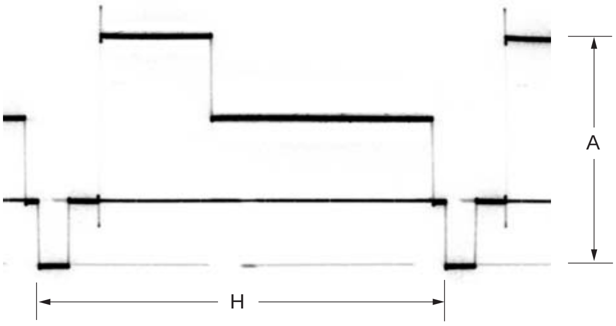


Fig. 6-3-6

4. S VIDEO OUT Chroma Level Adjustment (2) (VC-378 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO plug of A/V jack (75 Ω terminated) External trigger: Y signal terminal of S VIDEO plug of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified value	Cr level: A = 714 ± 14 mVp-p (NTSC) A = 700 ± 14 mVp-p (PAL) Cb level: B = 714 ± 14 mVp-p (NTSC) B = 700 ± 14 mVp-p (PAL) Burst level:C = 286 ± 6 mVp-p (NTSC) C = 300 ± 6 mVp-p (PAL)

Note 1: Perform "S VIDEO OUT Y level adjustment (1)" and "S VIDEO OUT chroma level adjustment (1)" before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is "00".

Note 3: NTSC model: DCR-HC41/HC42/HC43
PAL model: DCR-HC39E/HC42E/HC43E

Switch setting

1) DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	8	4C		Set the bit value of bit1 is "0", and press PAUSE button. (Note 4)
3	3	01	71	Press PAUSE button.
4	C	26		Change the data and set the Cr signal level (A) to the specified value.
5	C	26		Press PAUSE button.
6	C	27		Change the data and set the Cb signal level (B) to the specified value.
7	C	27		Press PAUSE button.
8				Check the burst signal (C) to the specified value.
9	3	01	00	
10	8	4C		Set the bit value of bit1 is "1", and press PAUSE button. (Note 4)
11	0	01	00	

Note 4: For the bit values, refer to "6-4. SERVICE MODE", "4-3. 3. Bit value discrimination".

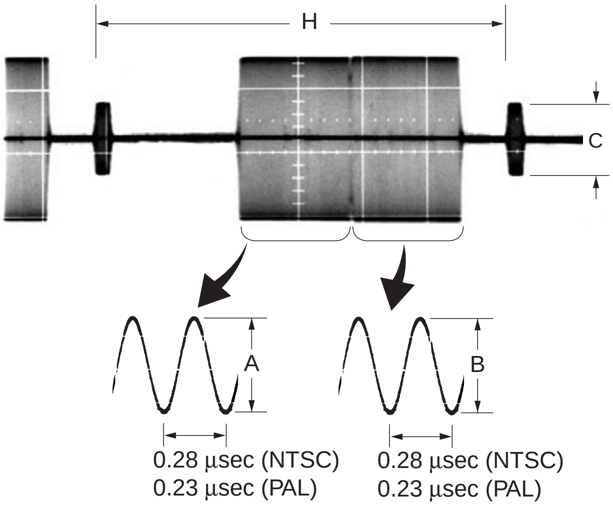


Fig. 6-3-7

5. IC4701 Automatic Adjustment (VC-378 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	83 to 8A, 99, A1 to A3

Note 1: Perform "S VIDEO OUT Y level adjustment (1)/(2)" and "S VIDEO OUT chroma level adjustment (1)/(2)" before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is "00".

Note 3: Connect the multi-cable and make a check with the panel lighting.

Switch setting

LCD panel .... OPEN

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	78	Press PAUSE button. (Note 4)
3	3	04 05		Check the data is "78". (Note 5)
4	3	01	00	Press PAUSE button.
5	0	01	00	

Note 4: The adjustment data will be automatically input to page: C, address: 83 to 8A, 99, A1 to A3.

Note 5: If the data is other than "78", adjustment has errors. Contents of error is written into Page: 3, address: 03. See the following Table.

Data of page:3, address: 03	Contents fo error
72	S VIDEO OUT Y level adjustment (1) error
74	IC4701 Panel Clamp level adjustment error
75	IC4001 Panel Output Gain adjustment error
76	IC4701 Panel Output Gain adjustment error

6. VIDEO OUT Level Check (VC-378 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Video terminal of A/V OUT jack or A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified value	Sync level: A = 286 ± 18 mVp-p (NTSC) A = 300 ± 18 mVp-p (PAL) Burst level: B = 286 ± 18 mVp-p (NTSC) B = 300 ± 18 mVp-p (PAL)

Note: Check that the data of page: 0, address: 10 is "00".

Switch setting

1) DEMO MODE (Menu setting) .... OFF

Checking method:

Order	Page	Address	Data	Procedure
1	3	01	71	Press PAUSE button.
2				Check the sync signal level (A) to the specified value.
3				Check the burst signal level (B) to the specified value.
4	3	01	00	Press PAUSE button.

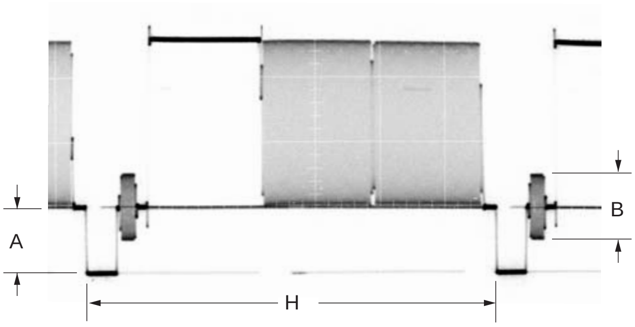
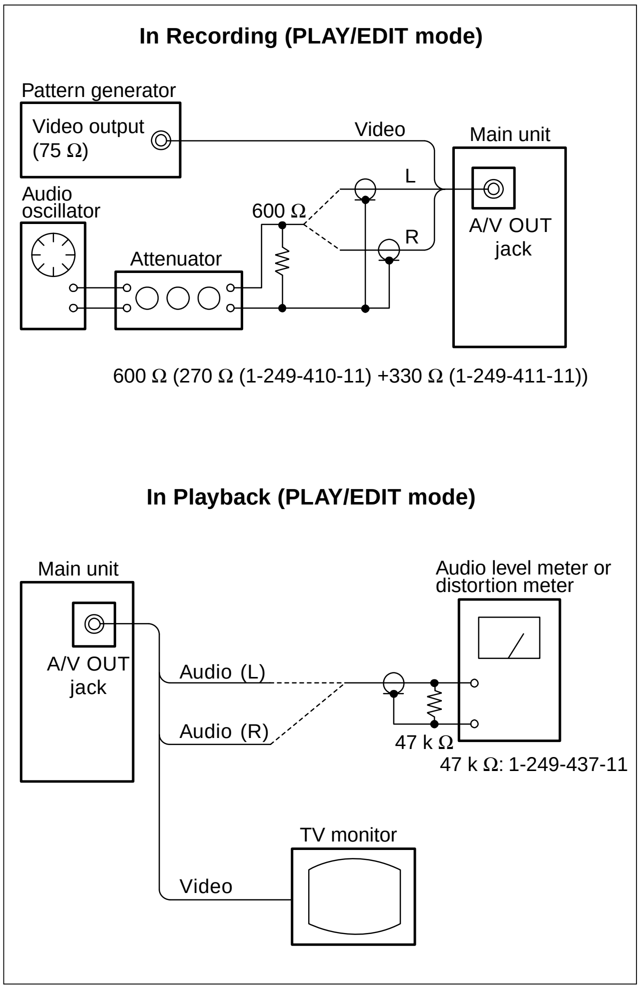


Fig. 6-3-8

3-5. AUDIO SYSTEM ADJUSTMENTS (DCR-HC39E)

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-9.



In Recording (PLAY/EDIT mode)
Pattern generator
Video output (75 Ω)
Video
Main unit
L
R
A/V OUT jack
Audio oscillator
600 Ω
Attenuator
600 Ω (270 Ω (1-249-410-11) +330 Ω (1-249-411-11))
In Playback (PLAY/EDIT mode)
Main unit
A/V OUT jack
Audio level meter or distortion meter
Audio (L)
Audio (R)
47 k Ω
47 k Ω: 1-249-437-11
TV monitor
Video

Fig. 6-3-9

1. Playback Level Check

Mode	Playback (PLAY/EDIT mode)
Signal	Alignment tape: For audio operation check (XH5-3P)
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, + 3.0 ± 2.0 dBs 48 kHz mode: 1 kHz, + 3.0 ± 2.0 dBs 44.1 kHz mode: The 7.35 kHz signal level during EMP OFF is +2.0 ± 2.0 dBs. The 7.35 kHz signal level during EMP ON is –6 ± 2 dB from the signal level during EMP OFF.

Checking Method:

1) Check that the playback signal level is the specified value.

2. Overall Level Characteristics Check

Mode	Recording and playback (PLAY/EDIT mode)
Signal	400 Hz, –7.5 dBs signal: Audio left and right terminal of A/V OUT jack
Measurement Point	Audio left or right terminal of A/V OUT jack
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3.0 dBs

Checking Method:

1) Select page: 7, address: 01, and set data: 94.
2) Select page: 7, address: 04, and set data: 0E.
3) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
4) Select page: 7, address: 02, and check that the changes to “01”.
5) Input the 400 Hz, –7.5 dBs signal in the audio left and right terminal of A/V OUT jack.
6) Record the signal.
7) Remove the input signal.
8) Playback the recorded section.
9) Check that the 400 Hz signal level is the specified value.
10) Select page: 7, address: 01, and set data: 94.
11) Select page: 7, address: 04, and set data: 0F
12) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
13) Select page: 7, address: 02, and check that the changes to “01”.

3. Overall Distortion Check

Mode	Recording and playback (PLAY/ EDIT mode)
Signal	400 Hz, –7.5 dBs signal: Audio left and right terminal of A/V OUT jack
Measurement Point	Audio left or right terminal of A/V OUT jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200 Hz to 6 kHz BPF ON)

Checking Method:

1) Select page: 7, address: 01, and set data: 94.
2) Select page: 7, address: 04, and set data: 0E.
3) Select page: 7, address: 00, set data: 01, and press the PAUSE butto.
4) Select page: 7, address: 02, and check that the changes to “01”.
5) Input the 400 Hz, –7.5 dBs signal in the audio left and right terminal of A/V OUT jack.
6) Record the signal.
7) Remove the input signal.
8) Playback the recorded section.
9) Check that the distortion is the specified value.
10) Select page: 7, address: 01, and set data: 94.
11) Select page: 7, address: 04, and set data: 0F
12) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
13) Select page: 7, address: 02, and check that the changes to “01”.

4. Overall Noise Level Check

Mode	Recording and playback (PLAY/ EDIT mode)
Signal	No signal: Audio left and right teminal of A/V OUT jack
Measurement Point	Audio left or right terminal of A/V OUT jack
Measuring Instrument	Audio level meter
Specified Value	Below –45 dBs (IHF-A filter ON, 20 kHz LPF ON)

Checking Method:

1) Select page: 7, address: 01, and set data: 94.
2) Select page: 7, address: 04, and set data: 0E.
3) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
4) Select page: 7, address: 02, and check that the changes to “01”.
5) Connect the audio left terminal of A/V OUT jack to GND using a jumper wire.
   Connect the audio right teminal of A/V OUT jack to GND using a jumper wire.
6) Record the signal.
7) Playback the recorded section.
8) Remove the jumper wires.
9) Check that the noise level is the specified value.
10) Select page: 7, address: 01, and set data: 94.
11) Select page: 7, address: 04, and set data: 0F
12) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
13) Select page: 7, address: 02, and check that the changes to “01”.

5. Overall Separation Check

Mode	Recording and playback (PLAY/ EDIT mode)
Signal	400 Hz, –7.5 dBs signal: Audio <right> [left] terminal of A/V OUT jack No signal: Audio <left> [right] terminal of A/V OUT jack
Measurement Point	Audio <left> [right] terminal of A/V OUT jack
Measuring Instrument	Audio level meter
Specified Value	Below –40 dBs

< > : Left channel check
[ ] : Right channel check

Checking Method:

1) Select page: 7, address: 01, and set data: 94.
2) Select page: 7, address: 04, and set data: 0E.
3) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
4) Select page: 7, address: 02, and check that the changes to “01”.
5) Input the 400 Hz, –7.5 dBs signal in the audio <right> [left] terminal of A/V OUT jack.
   Connect the audio <left> [right] terminal of A/V OUT jack to GND using a jumper wire.
6) Record the signal.
7) Remove the input signal, and remove the jumper wire.
8) Playback the recorded section.
9) Check that the signal level of the audio <left> [right] terminal is the specified value.
10) Select page: 7, address: 01, and set data: 94.
11) Select page: 7, address: 04, and set data: 0F
12) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
13) Select page: 7, address: 02, and check that the changes to “01”.

3-6. AUDIO SYSTEM ADJUSTMENTS (Except DCR-HC39E)

[Connecting the measuring instruments for the audio]
Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-10.

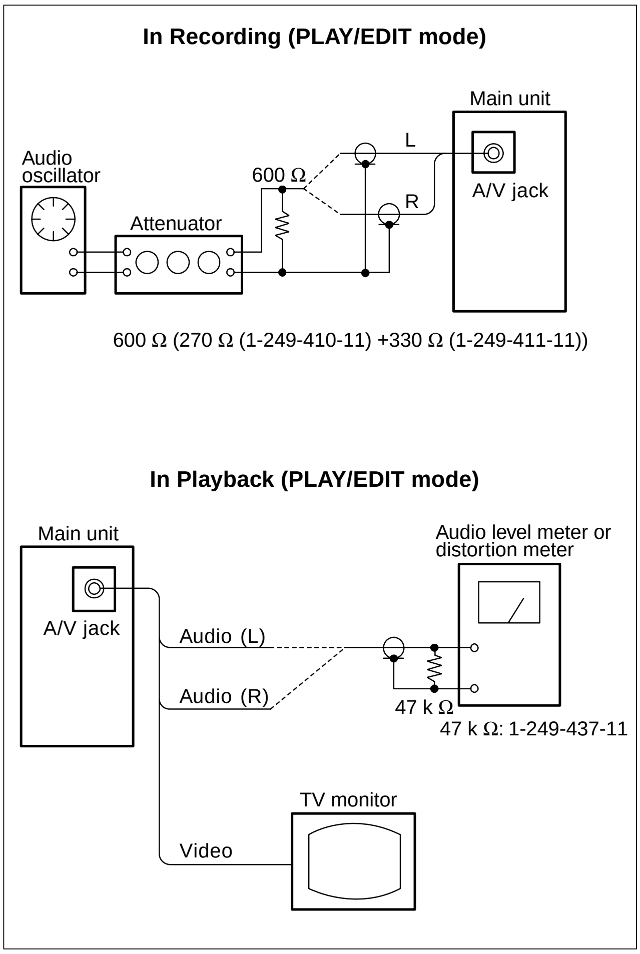

In Recording (PLAY/EDIT mode)
Main unit
Audio oscillator
600 Ω
L
R
A/V jack
Attenuator
600 Ω (270 Ω (1-249-410-11) +330 Ω (1-249-411-11))
In Playback (PLAY/EDIT mode)
Main unit
Audio level meter or distortion meter
A/V jack
Audio (L)
Audio (R)
47 k Ω
47 k Ω: 1-249-437-11
TV monitor
Video

Fig. 6-3-10

1. Playback Level Check

Mode	Playback (PLAY/EDIT mode)
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, + 3.0 ± 2.0 dBs 48 kHz mode: 1 kHz, + 3.0 ± 2.0 dBs 44.1 kHz mode: The 7.35 kHz signal level during EMP OFF is +2.0 ± 2.0 dBs. The 7.35 kHz signal level during EMP ON is –6 ± 2 dB from the signal level during EMP OFF.

Note: NTSC model: DCR-HC41/HC43
PAL model: DCR-HC42E/HC43E

Checking Method:
1) Check that the playback signal level is the specified value.

2. Overall Level Characteristics Check

Mode	Recording and playback (PLAY/EDIT mode)
Signal	400 Hz, –7.5 dBs signal: Audio left and right terminal of A/V jack
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3.0 dBs

Checking Method:
1) Input the 400 Hz, –7.5 dBs signal in the audio left and right terminal of A/V jack.
2) Record the signal.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the 400 Hz signal level is the specified value.

3. Overall Distortion Check

Mode	Recording and playback (PLAY/ EDIT mode)
Signal	400 Hz, –7.5 dBs signal: Audio left and right terminal of A/V jack
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200 Hz to 6 kHz BPF ON)

Checking Method:

1) Input the 400 Hz, –7.5 dBs signal in the audio left and right terminal of A/V jack.
2) Record the signal.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the distortion is the specified value.

4. Overall Noise Level Check

Mode	Recording and playback (PLAY/ EDIT mode)
Signal	No signal: Audio left and right terminal of A/V jack
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter
Specified Value	Below –45 dBs (IHF-A filter ON, 20 kHz LPF ON)

Checking Method:

1) Connect the audio left terminal of A/V jack to GND using a jumper wire.
   Connect the audio right terminal of A/V jack to GND using a jumper wire.
2) Record the signal.
3) Remove the jumper wires.
4) Playback the recorded section.
5) Check that the noise level is the specified value.

5. Overall Separation Check

Mode	Recording and playback (PLAY/ EDIT mode)
Signal	400 Hz, –7.5 dBs signal: Audio <right> [left] terminal of A/V jack No signal: Audio <left> [right] terminal of A/V jack
Measurement Point	Audio <left> [right] terminal of A/V jack
Measuring Instrument	Audio level meter
Specified Value	Below –40 dBs

< > : Left channel check
[ ] : Right channel check

Checking Method:

1) Input the 400 Hz, –7.5 dBs signal in the audio <right> [left] terminal of A/V jack.
   Connect the audio <left> [right] terminal of A/V jack to GND using a jumper wire.
2) Record the signal.
3) Remove the input signal, and remove the jumper wire.
4) Playback the recorded section.
5) Check that the signal level of the audio <left> [right] terminal is the specified value.

6-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 6-4-1.

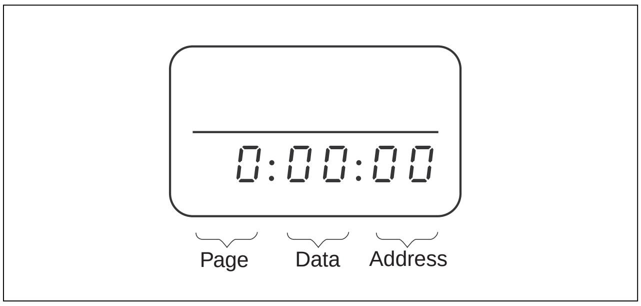


Fig. 6-4-1

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table 6-4-1

4-3. SERVICE MODE

Note: Before performing the adjustment, check the data of page: 0, address: 10 is “00”. If not, select page: 0, address: 00, and set data “00”.

1. Setting the Test Mode

Page A	Address 10

Data	Function
00	Normal
01	Forced camera power ON (CAMERA-TAPE mode)
02	Forced VTR power ON (PLAY/EDIT mode)
03	Forced camera + VTR power ON
05	Forced memory power ON (CAMERA-MEMORY mode)

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page A, the data set will be recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4 Vdc).
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

2-1. Emergency Memory Address (Camera section)

Page 19	Address 87 to 8A

Note: If reading/writing data on pages 19, set data: 01 to page: 0, address: 10, and then select pages: 9. By this data setting, the pages 19 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Address	Contents
87	EMG code when first error occurs
88	EMG code when second error occurs
89	EMG code when third error occurs
8A	EMG code when last error occurs

When no error occurs in this unit, data “00” is written in the above addresses (87 to 8A). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (87). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (88).
Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (8A).

Note: After completing adjustments, be sure to initialize the data of addresses 87 to 8A to “00”.

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	FD	Press PAUSE button.
3	6	02		Check the data changes to “01”.
4	6	01	00	Press PAUSE button.
5	0	01	00	

2-2. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in 19 page, addresses 87 to 8A. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error

2-3. Emergence Memory Address (Mechanism section)

Page C	Address F4 to FF

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data “00” is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

Note: After completing adjustments, be sure to initialize the data of addresses F4 to FF to “00”.

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	37	Press PAUSE button.
3	3	02		Check the data changes to “00”.
4	0	01	00	

2-4. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in C page, addresses F4, F8 and FC . The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

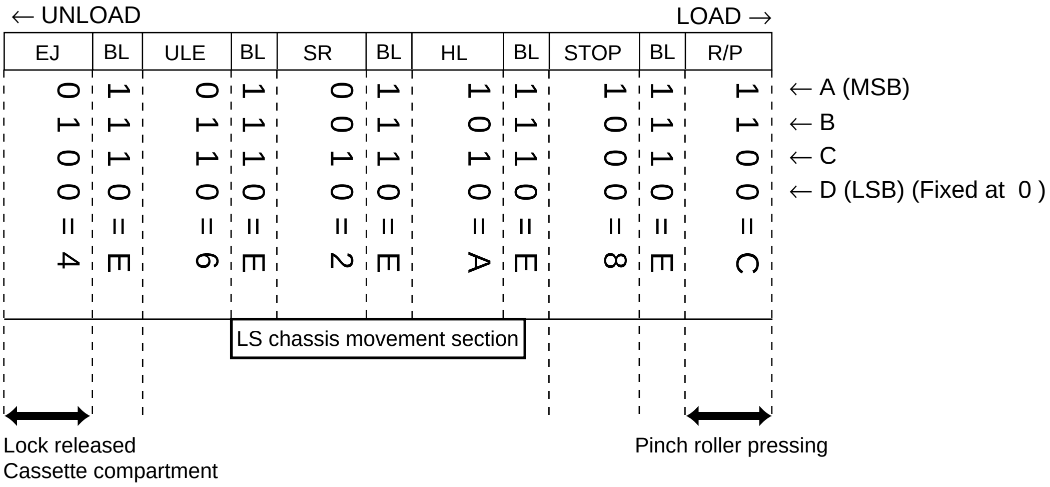
2-5. MSW Code

MSW when errors occur:
Information on MSW (mode SW) when errors occur

MSW when movement starts:
Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)

MSW of target of movement:
Information on target MSW of movement when the mechanism position is moved

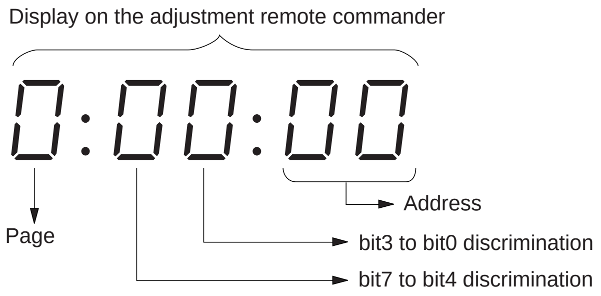
Mechanical Position


← UNLOAD
LOAD →
EJ
BL
ULE
BL
SR
BL
HL
BL
STOP
BL
R/P
0 1 0 0 = 4
1 1 1 0 = E
0 1 1 0 = 6
1 1 1 0 = E
0 0 1 0 = 2
1 1 1 0 = E
1 0 1 0 = A
1 1 1 0 = E
1 0 0 0 = 8
1 1 1 0 = E
1 1 0 0 = C
← A (MSB)
← B
← C
← D (LSB) (Fixed at 0)
LS chassis movement section
Lock released
Cassette compartment
Pinch roller pressing

Position	Code	Contents
EJ	4	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	E	BLANK code, at the boundary between codes.
ULE	6	EJECT completion position. when the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
SR	2	Position at which it is possible to release the S ratchet.
HL	A	Guide loading are performed here.
STOP	8	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	C	PB, REC, CUE, REVIEW, PAUSE, FF, REW positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
NULL	0	Code not existing in the MD. Default value.
	F	Status before finding any mechanism position.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Address
Page
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (C)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

4. Jack Check (1) (Handycam Station)

Page 7	Address FB

Bit	Function	When bit value = 1	When bit value = 0
0	CRADLE MULTI jack (CR-050 board CN002)	Used	Not used

Using method:

1) Select page: 7, address: FB.
2) By discriminating the bit value of display data, the state of jack can be discriminated.

5. Jack Check (2)

Page 7	Address F3

Bit	Function	When bit value = 1	When bit value = 0
0	A/V jack (JK-278 board CN701)	Used	Not used

Using method:

1) Select page: 7, address: F3.
2) By discriminating the bit value of display data, the state of jack can be discriminated.

6. Switch Check (1)

Page 2	Address 81

Bit	Function	When bit value = 1	When bit value = 0
0	POWER (SS10300 block)	ON	OFF
1	MODE CHANGE (SS10300 block)	ON	OFF
3	EJECT (SS10300 block S001)	ON	OFF
4	CC DOWN (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	DISP/BATT INFO (FP-187 flexible S001)	ON	OFF

Using method:

1) Select page: 2, address: 81.
2) By discriminating the bit value of display data, the state of switch can be discriminated.

7. Switch Check (2)

Page 7	Address 0F

Bit	Function	When bit value = 1	When bit value = 0
2	Lens cover (SI-042 board S601)	Close	Open

Using method:
1) Select page: 7, address: 0F.
2) By discriminating the bit value of display data, the state of switch can be discriminated.

8. Switch Check (3)

Page 7	Address F4

Bit	Function	When bit value = 1	When bit value = 0
4	REC PROOF SW (Mechanism chassis)	SAVE	REC

Using method:
1) Select page: 7, address: F4.
2) By discriminating the bit value of display data, the state of switch can be discriminated.

9. Switch Check (4)

Page 7	Address 65 to 6B

Note: Check that the data of page: 0, address: 10 is "00".

Using method:
1) Select page: 7, address: 65 to 6B.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 26	27 to 43	44 to 63	64 to 8A	8B to B6	B7 to E6	E7 to FF
65 (KEY AD0) (IC5102 (139))	START/STOP (SS10300 block) (S004)							No key input
66 (KEY AD1) (IC5102 (140))	2nd START/STOP (SB10600 block) (S001)	ZOOM W (SB10600 block) (S002)	ZOOM T (SB10600 block) (S003)	WIDE (SB10600 block) (S004)	PANEL REVERES (FP-186 flexible) (S001)			PANEL NORMAL (FP-186 flexible) (S001)
67 (KEY AD2) (IC5102 (141))	PHOTO (REC) (SS10300 block) (S002)		PHOTO (FREEZE) (SS10300 block) (S003)					No key input
68 (KEY AD3) (IC5102 (142))	EASY (FP-187 flexible) (S002)	BACK LIGHT (FP-187 flexible) (S003)	PANEL CLOSE (FP-187 flexible) (S004)					PANEL OPEN (FP-187 flexible) (S004)
69 (KEY AD4) (IC5102 (143))								
6A (KEY AD5) (IC5102 (144))								
6B (KEY AD6) (IC5102 (145))								

10. LED, IR Light Check

Page 7	Address 00, 01 and 04

Note: Check that the data of page: 0, address: 10 is "00".

Using method:

Order	Page	Address	Data	Procedure
1				Set the unit to CAMERA-TAPE mode.
2	7	01	90	
3	7	04	01	
4	7	00	01	Press PAUSE button.
5				Check that the all LED are lit, and that the IR light is lit.
6	7	01	90	
7	7	04	00	
8	7	00	01	Press PAUSE button.
9	7	00	00	
10	7	01	00	

11. Record of Use Check (1)

Page 7	Address A7 to A9

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (MS-249 board BT501) is removed.
Note 2: When the drum was replaced, initialize the drum rotation counted time.
Note 3: Check that the data of page: 0, address: 10 is "00".

Address	Function		Remarks
A4	Power supplying time	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
A5		Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
A6		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A7	(BCD code)	Minute	
A8	Drum rotation counted time	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
A9		Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
AA		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
AB	(BCD code)	Minute	
AC	Tape run time	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
AD		Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
AE		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
AF	(BCD code)	Minute	

Using method:

1) The record of use data is displayed at page: 7, addresses: A4 to AF.

Initializing method:

Order	Page	Address	Data	Procedure
1	7	A4	00	Press PAUSE button.
2	7	A5	00	Press PAUSE button.
3	7	A6	00	Press PAUSE button.
4	7	A7	00	Press PAUSE button.
5	7	A8	00	Press PAUSE button.
6	7	A9	00	Press PAUSE button.
7	7	AA	00	Press PAUSE button.
8	7	AB	00	Press PAUSE button.
9	7	AC	00	Press PAUSE button.
10	7	AD	00	Press PAUSE button.
11	7	AE	00	Press PAUSE button.
12	7	AF	00	Press PAUSE button.

12. Record of Use Check (2)

Page 7	Address 90 to 95

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (MS-249 board BT501) is removed.
Note 2: When the drum was replaced, initialize the drum rotation counted time.
Note 3: Check that the data of page: 0, address: 10 is “00”.

Address	Function		Remarks
90	Eject count with tape (BCD code)	Count (H)	100000th place digit and 10000th place digit of Eject count (decimal digit)
91		Count (M)	1000th place digit and 100th place digit of Eject count (decimal digit)
92		Count (L)	10th place digit and 1st place digit of Eject count (decimal digit)
93	Eject count without tape (BCD code)	Count (H)	100000th place digit and 10000th place digit of Eject count (decimal digit)
94		Count (M)	1000th place digit and 100th place digit of Eject count (decimal digit)
95		Count (L)	10th place digit and 1st place digit of Eject count (decimal digit)

Using method:

1) The record of use data is displayed at page: 7, addresses: 90 to 95.

Initializing method:

Order	Page	Address	Data	Procedure
1	7	90	00	Press PAUSE button.
2	7	91	00	Press PAUSE button.
3	7	92	00	Press PAUSE button.
4	7	93	00	Press PAUSE button.
5	7	94	00	Press PAUSE button.
6	7	95	00	Press PAUSE button.

13. Record of Use Check (3)

Page 7	Address C8 to CD

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (MS-249 board BT501) is removed.
Note 2: Check that the data of page: 0, address 10 is “00”.

Address	Function		Remarks
C8	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
C9		Month	
CA		Day	
CB	Final condensation occurrence date (BCD code)	Year	
CC		Month	
CD		Day	

Using method:

1) The record of use data is displayed at page: 7, addresses: C8 to CD.

14. Record of Self-diagnosis Check

Page 7	Address B0 to C6

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (MS-249 board BT501) is removed.
Note 2: Check that the data of page: 0, address 10 is “00”.

Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

*1 : “01” → “C”, “03” → “E”

Using method:

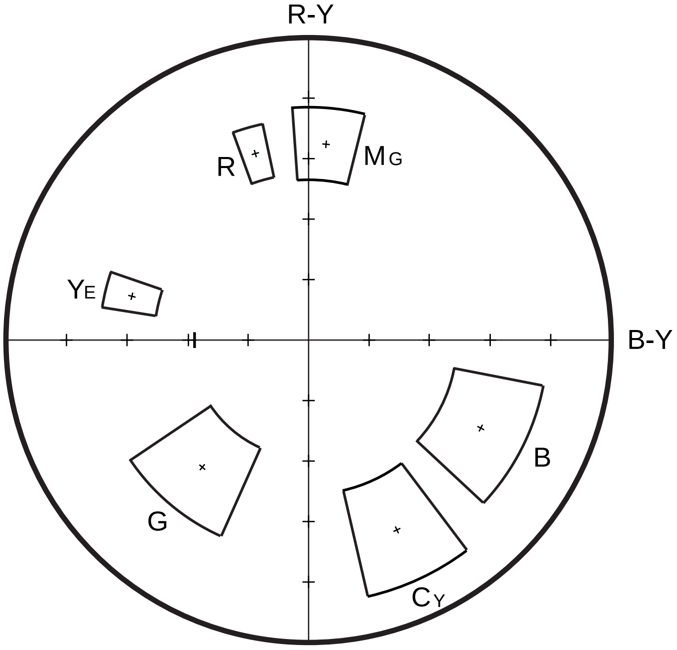
1) The past self-diagnosis codes are displayed at page: 7, address: BC to C6. Refer to “1-4. SELF-DIAGNOSIS FUNCTION” of “SERVICE MANUAL, LEVEL 2 (987678331.pdf)” for detail of the self-diagnosis code.

Initializing method:

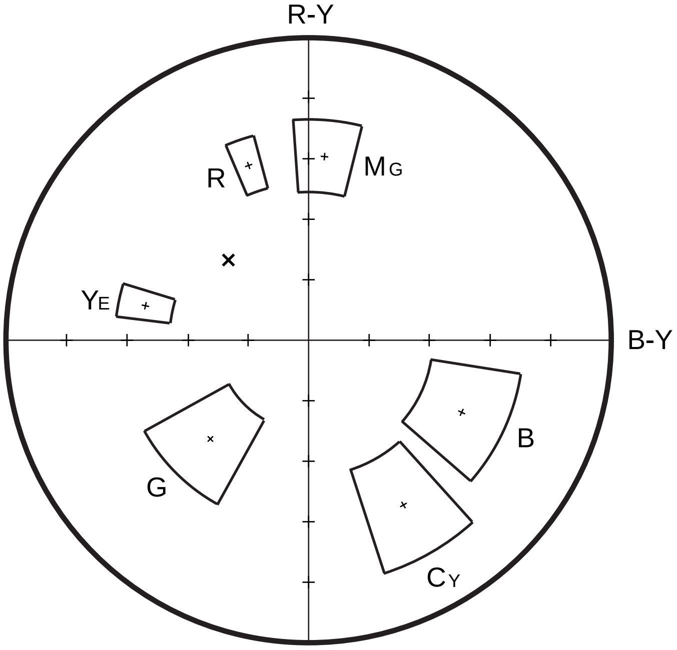
Order	Page	Address	Data	Procedure
1	7	01	C0	
2	7	00	01	Press PAUSE button.
3	7	B0 to C6		Check that the data is “00”.
4	7	00	00	
5	7	01	00	

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.


R-Y
R
MG
YE
B-Y
B
G
CY

DCR-HC41/HC42/HC43


R-Y
R
MG
YE
B-Y
B
G
CY

DCR-HC39E/HC42E/HC43E

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2005.01	Official Release	—	—

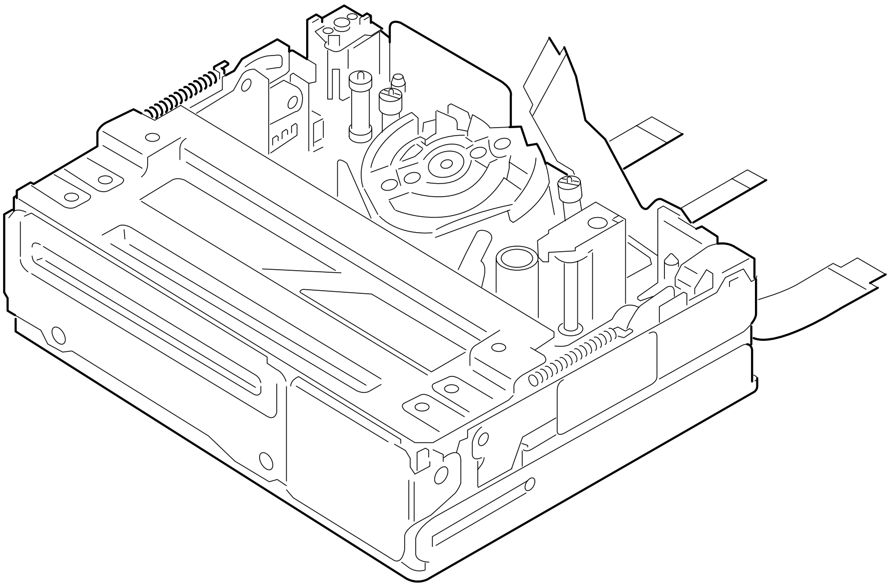
DV MECHANICAL ADJUSTMENT MANUAL VII

Ver 1.0 2003. 01

Z MECHANISM

Mini DV Digital Video Cassette

Please use this manual with the service manual of the respective models.



The capstan motor and the drum base block assy of this mechanism require very high precision work to install them in the mechanism. Therefore, the capstan motor and the drum base block assy are not supplied as the repair part independently. They are supplied as MD (Z100) SUB block assy.

Digital MECHANISM DECK

SONY®

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1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- Refer to the “DISASSEMBLY” section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When making any adjustment to a mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section “2-5. Mode Selector II” for details on how to enter the mode shown in a rectangle ☐ mode in subsequent paragraphs of this manual.

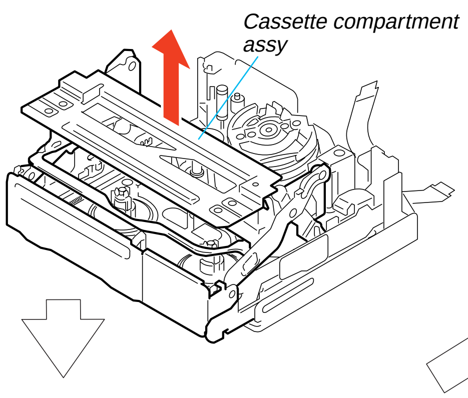
1-1. Cassette Compartment Assy, Damper Assy

1. Removal procedure

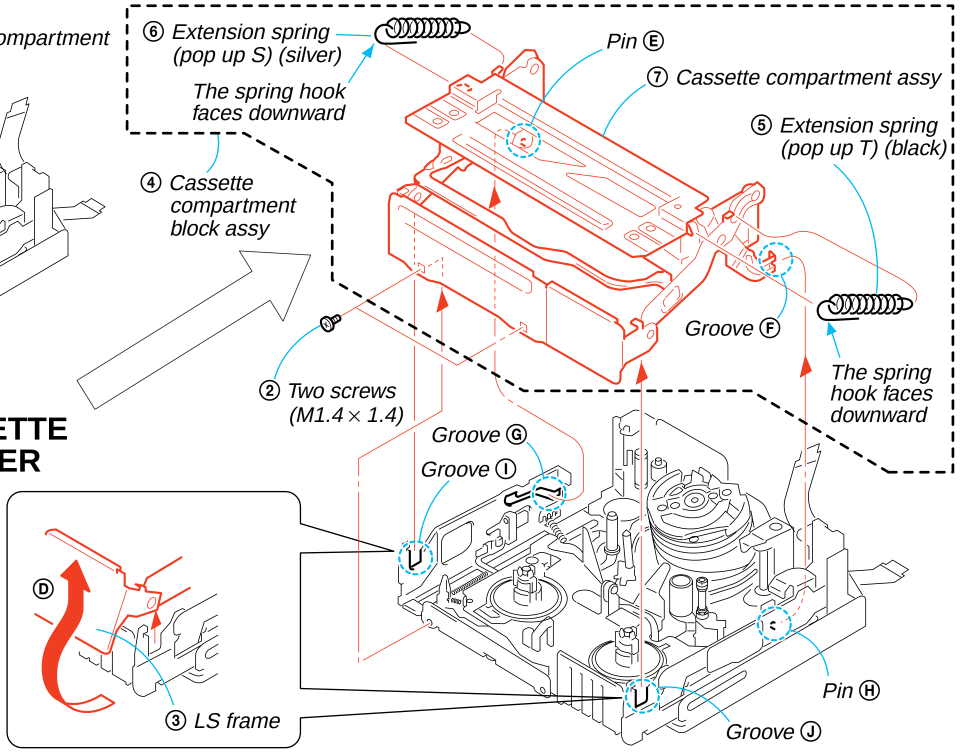
1) Set the EJ mode.
2) Press the cassette compartment down halfway. Pull the cassette compartment damper ① in the direction of the arrow Ⓐ. Then rotate it in the Ⓑ direction, and remove it in the direction of Ⓒ.
3) Remove the two screws (special head screw M1.4 × 1.4) ②.
4) Remove the LS chassis block assy ③ in the direction of the arrow Ⓓ.
5) Remove the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ from the LS chassis groove Ⓖ and pin Ⓗ. Then remove the cassette compartment block assy ④.
6) Remove the tension spring (POP UP T) (black) ⑤.
7) Remove the tension spring (POP UP S) (silver) ⑥.Then remove the cassette compartment assy ⑦.

2. Attachment procedure

1) Set the ULE mode.
2) Install the tension spring (cassette compartment S) (POP UP S) (silver) ⑥ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
3) Install the tension spring (cassette compartment T) (POP UP T) (black) ⑤ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
4) Install the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ into the LS chassis groove Ⓖ and pin Ⓗ.
5) In the status that the LS block assy ③ is kept open, insert it into the grooves Ⓘ and Ⓙ of the LS chassis block assy.
6) Close the LS chassis block assy ③ in the direction opposite to the arrow Ⓓ, and install it with the two screws (special head screw M1.4 × 1.4) ②.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
7) The cassette compartment down halfway. Pass the Ⓚ portion of the cassette compartment damper ① through the groove at the tip of the cassette compartment. Then pull the Ⓛ portion and fix it using tweezers or something.



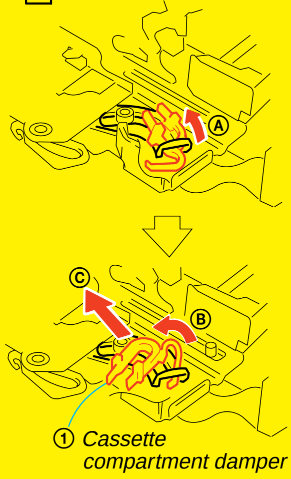
Cassette compartment assy



⑥ Extension spring (pop up S) (silver)
The spring hook faces downward
④ Cassette compartment block assy
Pin Ⓔ
⑦ Cassette compartment assy
⑤ Extension spring (pop up T) (black)
Groove Ⓕ
The spring hook faces downward
② Two screws (M1.4 × 1.4)
Groove Ⓖ
Groove Ⓘ
Ⓓ
③ LS frame
Pin Ⓗ
Groove Ⓙ

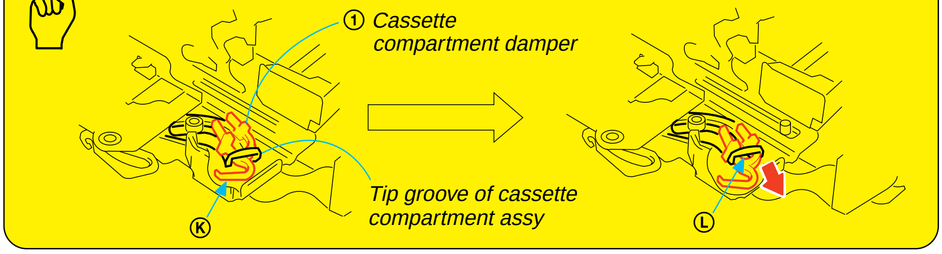
REMOVING THE CASSETTE COMPARTMENT DAMPER

Points to be noted



Ⓐ
Ⓒ
Ⓑ
① Cassette compartment damper

Key Points in Re-assembling



① Cassette compartment damper
Tip groove of cassette compartment assy
Ⓚ
Ⓛ

2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-1. Rotary Drum Cleaning

1) Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2. Tape Path System Cleaning (Refer to Fig. 2-1.)

1) Set the EJECT state. Clean the tape running path (TG-1, -2, -3, -4, -5, -6 and -7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.

Note 1: Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. J-3).

Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.

Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

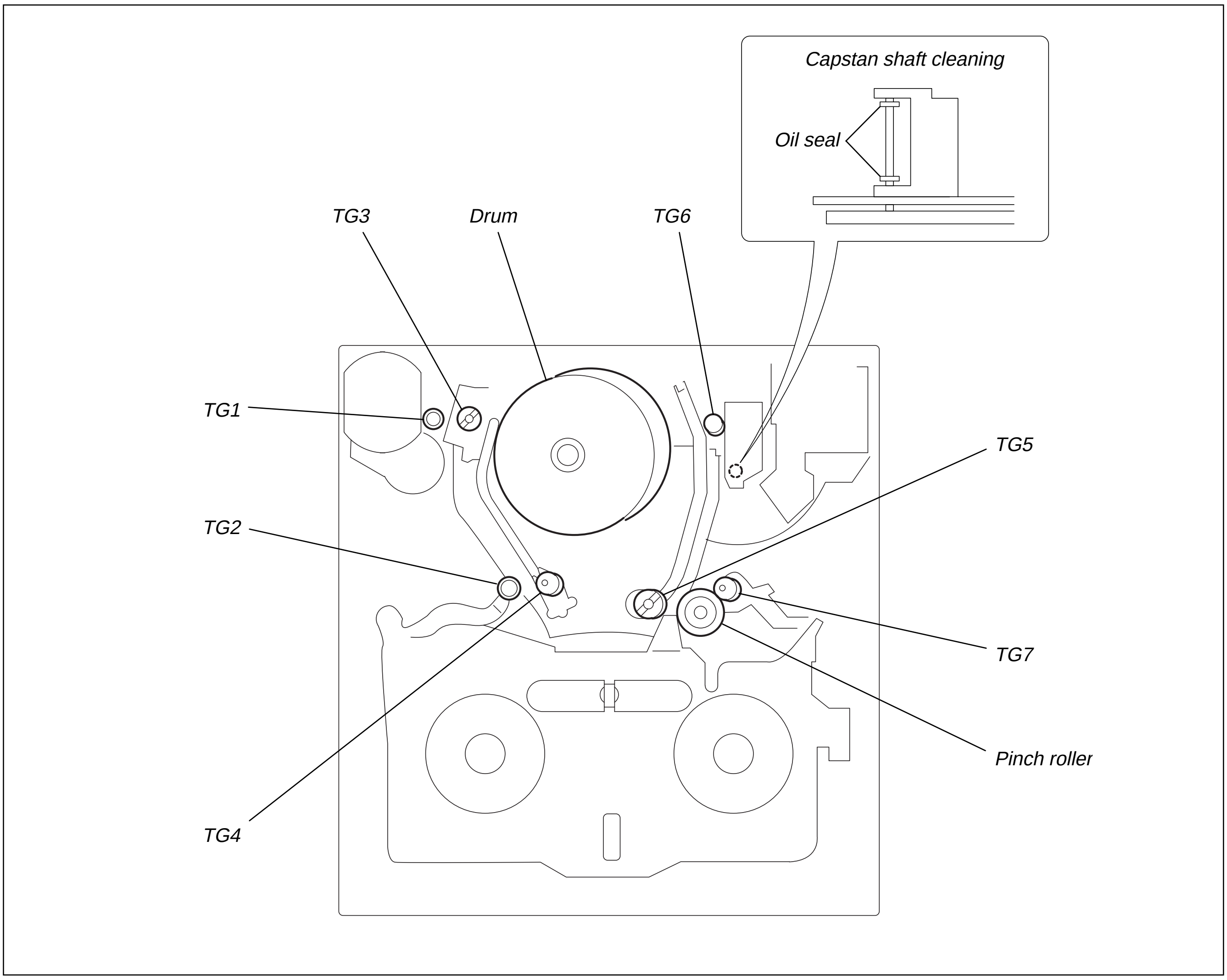


Fig. 2-1

2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Capstan bearing	—	☆	—	☆	—	☆	—	☆	—	☆	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note 1: When the machine is overhauled, replace the parts referring to the above list.

Note 2: Grease

- Be sure to use the specified grease only. (If grease of different viscosity is used, it can cause various troubles.)
- The grease must not contain any dust or other matter. (otherwise it can cause various trouble.)
- Observe the noted amount of grease. (otherwise the oozed grease can cause troubles.)
- Suncall FG-87HSR

2-4. Service Jigs and Tools

Ref. No.	Name	Part code	Jig inscription	Used for
J-1	Cleaning fluid	Y-2031-001-0		
J-2	Wiping cloth	7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))	—		
J-4	Mirror (small oval type)	J-6080-840-A	GD-2038	Tape path
J-5	Tracking tape (XH2-1) (NTSC, PAL)	8-967-997-01		Tape path
J-6	Mini DV torque cassette	J-6082-360-A		
J-7	FWD/BACK T adjustment screwdriver	J-6082-187-A		For TG2 FWD position adjustment
J-8	Torque screwdriver	J-9049-330-A		
J-9	Tape path screwdriver	J-6082-026-A		For tape path adjustment
J-10	Adjustment remote commander (RM-95 upgraded)	J-6082-053-B		
J-11	Mode Selector II	J-6082-282-B		General adjustment (ROM version 1.8)
J-12	Mode Selector II conversion board (Z)	J-6082-493-A		
J-13	Mode Selector II ROM (supporting Z mechanism) * Note 1	J-6082-314-G		ROM for Mode Selector II

Other required equipment: Oscilloscope

Note 1: This is the ROM used for upgrading the version of Mode Selector II to enable it to be used for the Z mechanism.

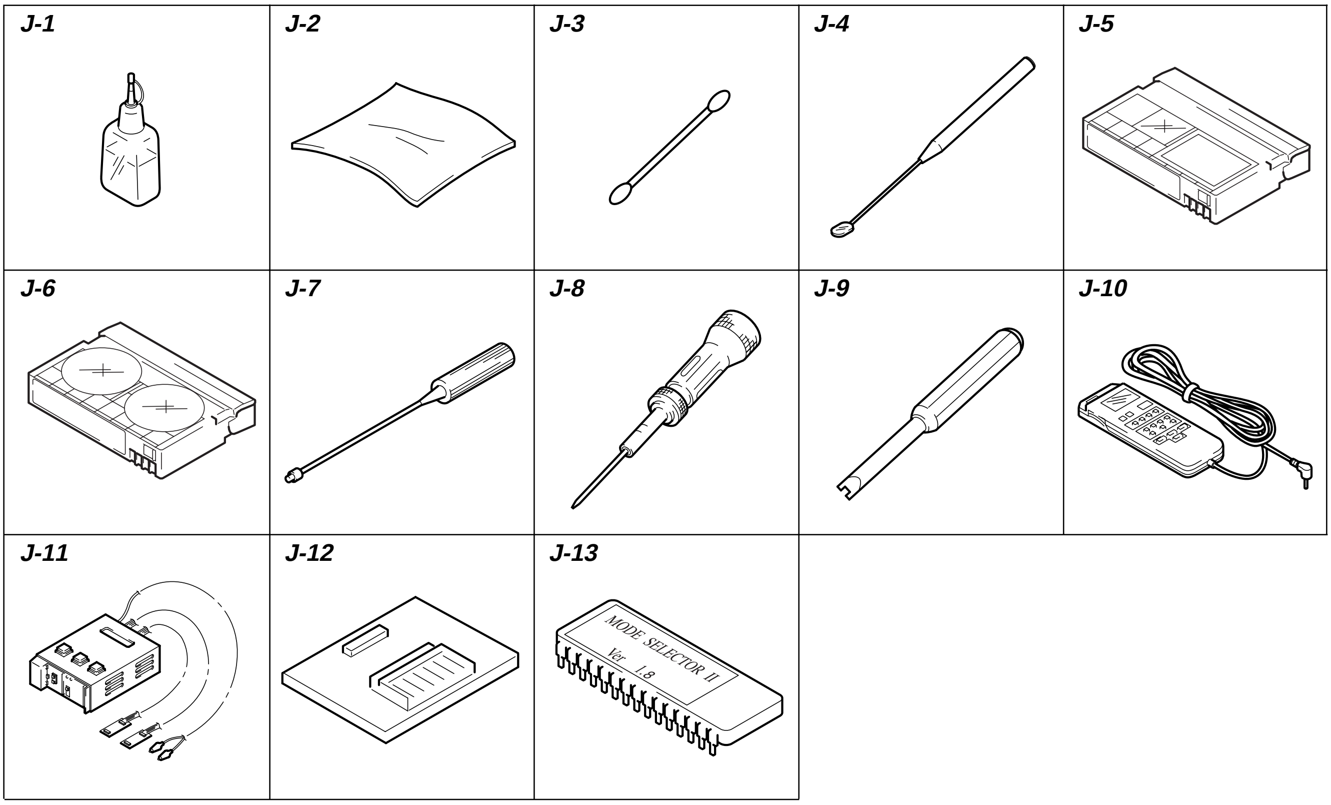

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12
J-13
MODE SELECTOR II
Ver 1.8

Fig. 2-2

2-5. Mode Selector II Operating Procedure

2-5-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the “NG” indication appears and the mechanism stops moving.

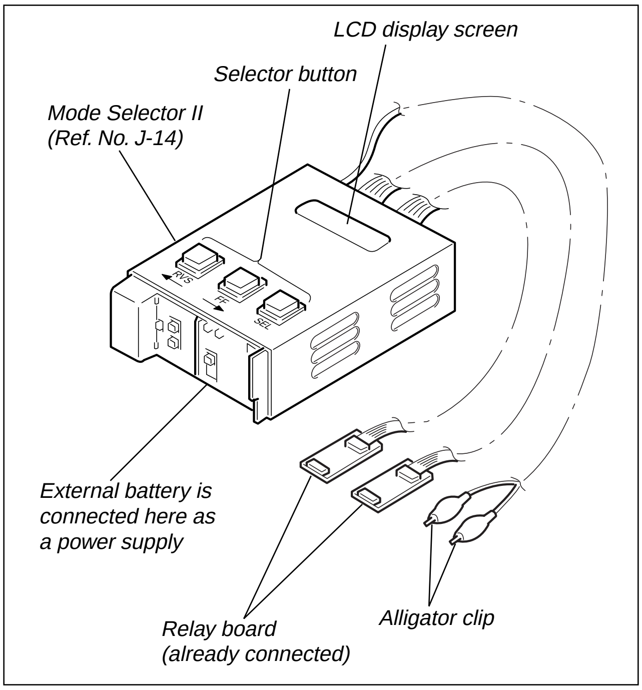

LCD display screen
Selector button
Mode Selector II
(Ref. No. J-14)
External battery is
connected here as
a power supply
Relay board
(already connected)
Alligator clip

Fig. 2-3

Mode Selector II (J-6082-282-B) connection diagram

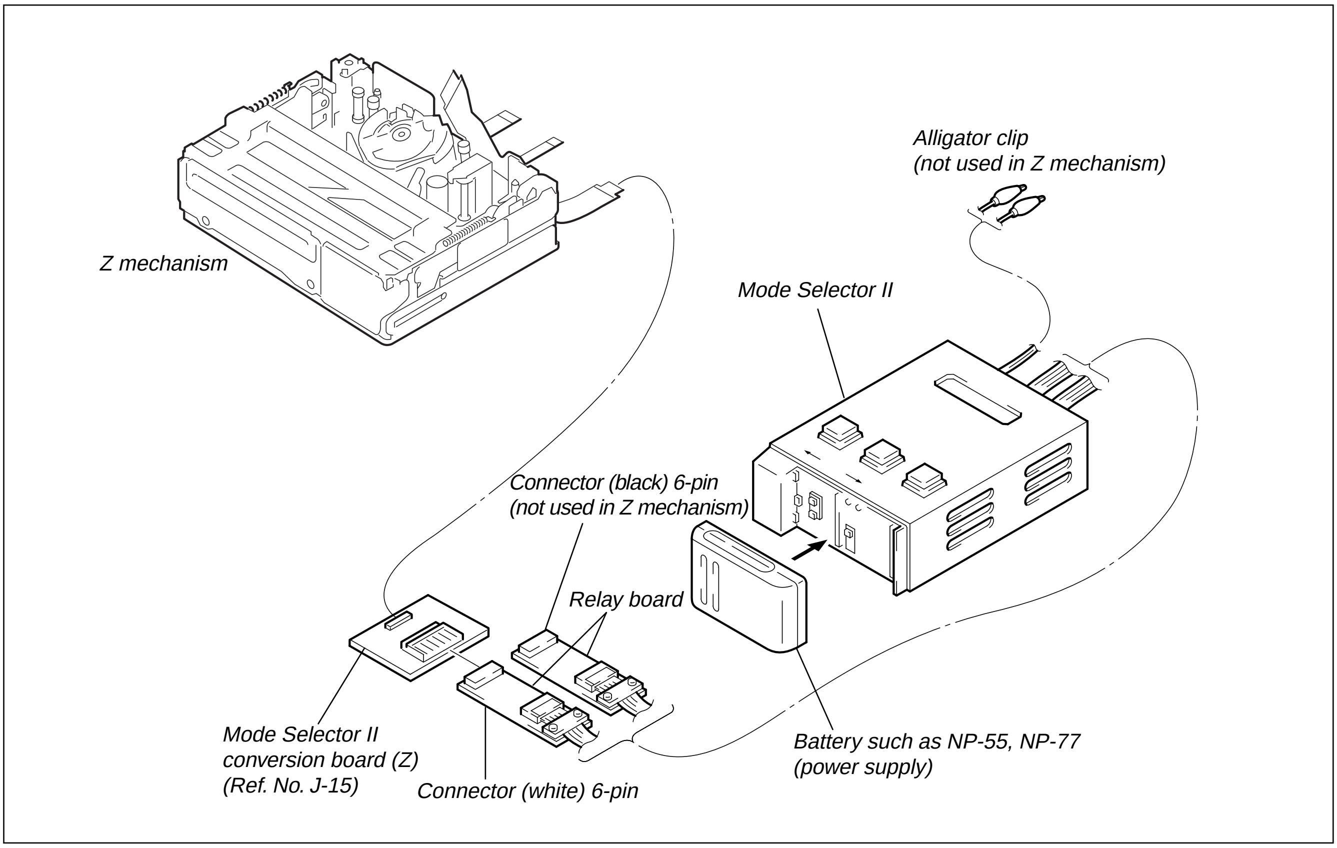
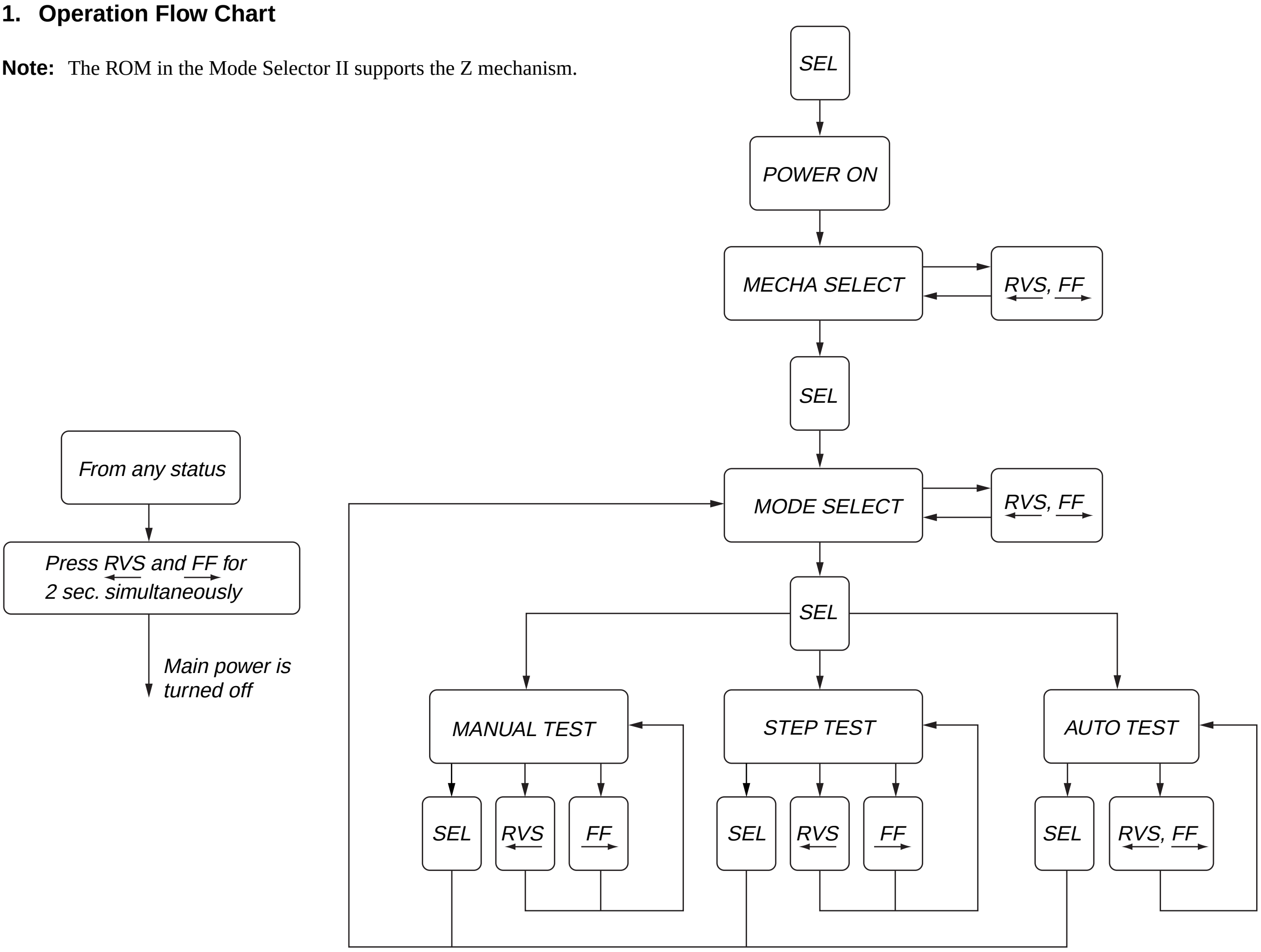

Alligator clip
(not used in Z mechanism)
Z mechanism
Mode Selector II
Connector (black) 6-pin
(not used in Z mechanism)
Relay board
Mode Selector II
conversion board (Z)
(Ref. No. J-15)
Connector (white) 6-pin
Battery such as NP-55, NP-77
(power supply)

Fig. 2-4

2-5-2. Operation

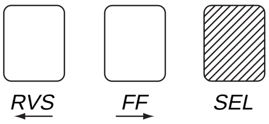
1. Operation Flow Chart

Note: The ROM in the Mode Selector II supports the Z mechanism.


SEL
POWER ON
MECHA SELECT
RVS, FF
SEL
MODE SELECT
RVS, FF
SEL
MANUAL TEST
STEP TEST
AUTO TEST
SEL
RVS
FF
SEL
RVS
FF
SEL
RVS, FF
From any status
Press RVS and FF for
2 sec. simultaneously
Main power is
turned off

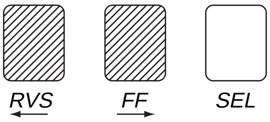
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the Z mechanism.)

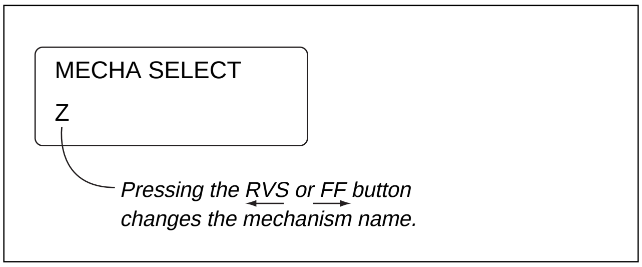

MECHA SELECT
Z
Pressing the RVS or FF button changes the mechanism name.

Fig. a

5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of “MANUAL”, “STEP” and “AUTO”. Selection is complete when the SEL button is pressed.

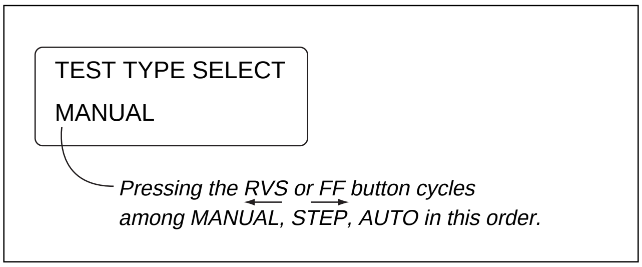

TEST TYPE SELECT
MANUAL
Pressing the RVS or FF button cycles among MANUAL, STEP, AUTO in this order.

Fig. b

6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

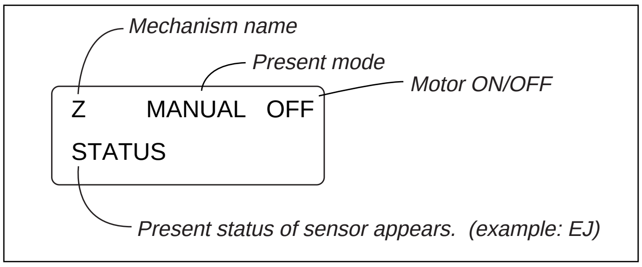

Mechanism name
Present mode
Motor ON/OFF
Z MANUAL OFF
STATUS
Present status of sensor appears. (example: EJ)

Fig. c

7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

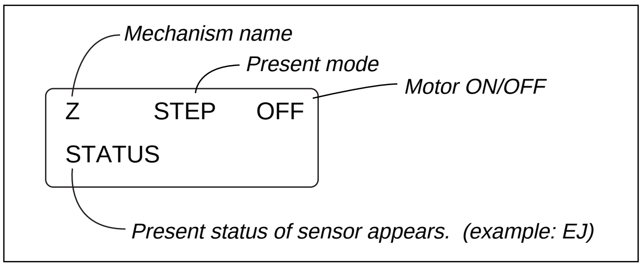

Mechanism name
Present mode
Motor ON/OFF
Z STEP OFF
STATUS
Present status of sensor appears. (example: EJ)

Fig. d

8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the RVS or FF button performs the same operation.

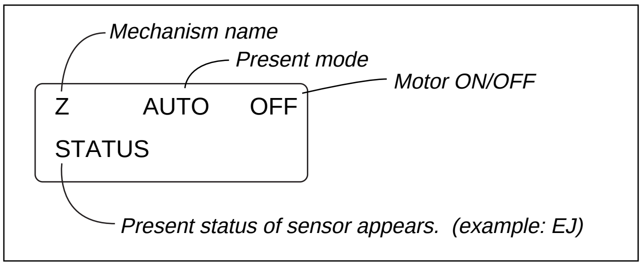

Mechanism name
Present mode
Motor ON/OFF
Z AUTO OFF
STATUS
Present status of sensor appears. (example: EJ)

Fig. e

2-5-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)
EJ↔ULE↔SR↔HL↔STOP↔R/P

MD name Code				Z Mechanism
A	B	C		
0	1	0	1	EJ
1	1	0	2	ULE
1	0	0	3	SR
1	0	1	4	HL
0	0	1	5	STOP
0	1	1	6	R/P

2-5-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

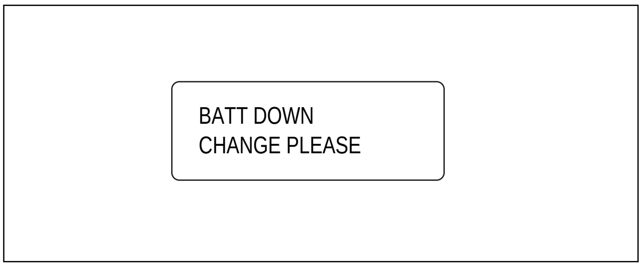
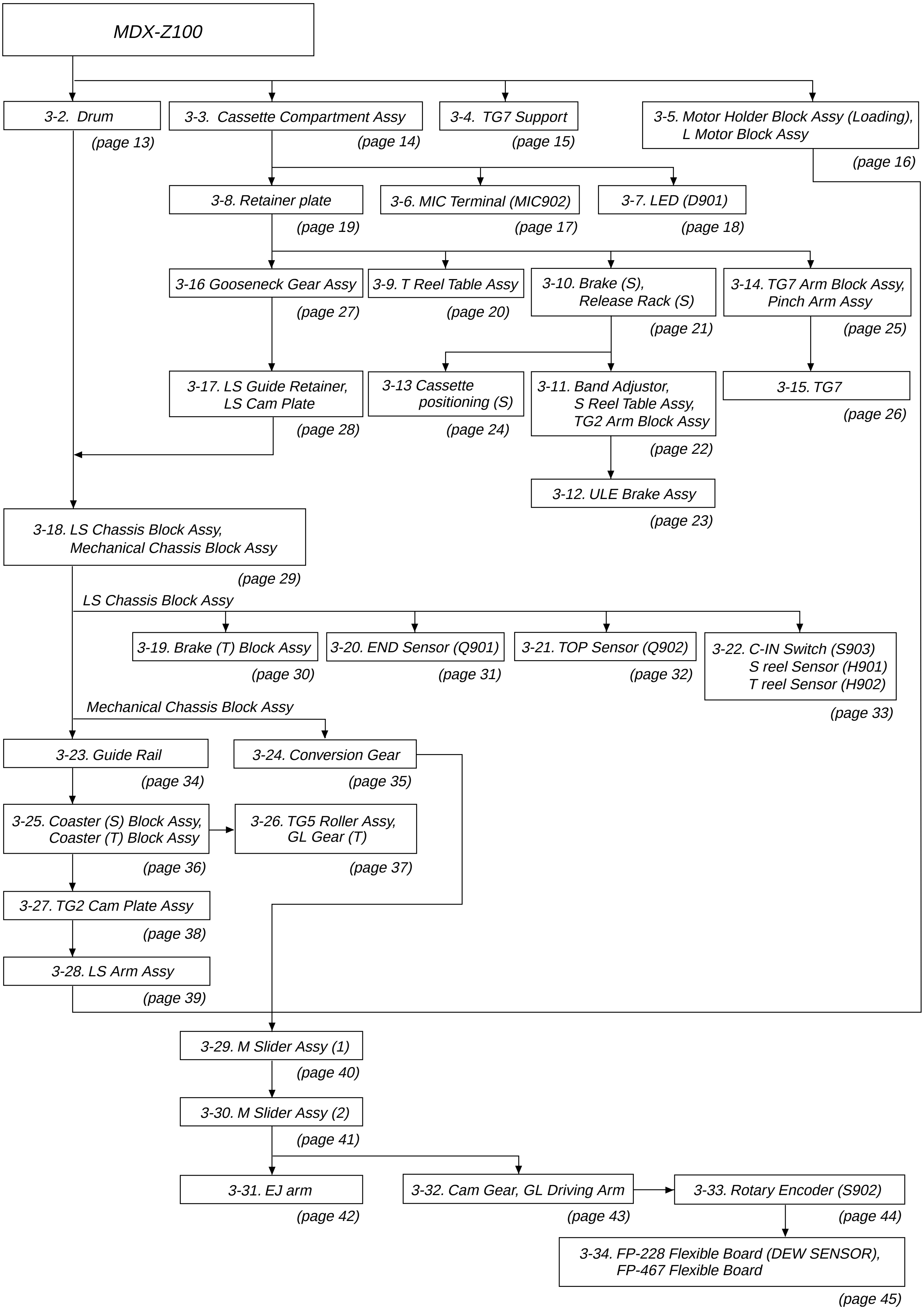

BATT DOWN
CHANGE PLEASE

Fig. f

3. Check, Adjustment and Replacement of Mechanical Parts

3-1. Flowchart of Replacement of Mechanical Parts


MDX-Z100
3-2. Drum (page 13)
3-3. Cassette Compartment Assy (page 14)
3-4. TG7 Support (page 15)
3-5. Motor Holder Block Assy (Loading), L Motor Block Assy (page 16)
3-8. Retainer plate (page 19)
3-6. MIC Terminal (MIC902) (page 17)
3-7. LED (D901) (page 18)
3-16 Gooseneck Gear Assy (page 27)
3-9. T Reel Table Assy (page 20)
3-10. Brake (S), Release Rack (S) (page 21)
3-14. TG7 Arm Block Assy, Pinch Arm Assy (page 25)
3-17. LS Guide Retainer, LS Cam Plate (page 28)
3-13 Cassette positioning (S) (page 24)
3-11. Band Adjustor, S Reel Table Assy, TG2 Arm Block Assy (page 22)
3-15. TG7 (page 26)
3-12. ULE Brake Assy (page 23)
3-18. LS Chassis Block Assy, Mechanical Chassis Block Assy (page 29)
LS Chassis Block Assy
3-19. Brake (T) Block Assy (page 30)
3-20. END Sensor (Q901) (page 31)
3-21. TOP Sensor (Q902) (page 32)
3-22. C-IN Switch (S903) S reel Sensor (H901) T reel Sensor (H902) (page 33)
Mechanical Chassis Block Assy
3-23. Guide Rail (page 34)
3-24. Conversion Gear (page 35)
3-25. Coaster (S) Block Assy, Coaster (T) Block Assy (page 36)
3-26. TG5 Roller Assy, GL Gear (T) (page 37)
3-27. TG2 Cam Plate Assy (page 38)
3-28. LS Arm Assy (page 39)
3-29. M Slider Assy (1) (page 40)
3-30. M Slider Assy (2) (page 41)
3-31. EJ arm (page 42)
3-32. Cam Gear, GL Driving Arm (page 43)
3-33. Rotary Encoder (S902) (page 44)
3-34. FP-228 Flexible Board (DEW SENSOR), FP-467 Flexible Board (page 45)

3-2. Drum

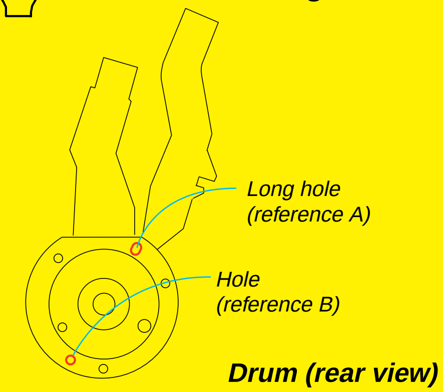
1. Removal procedure

1) Remove head drum flexible board Ⓒ from the notch of the mechanical chassis block assy.
2) Remove the drum fixing screw (M1.4 × 1.3) ① and remove the drum assy ②.

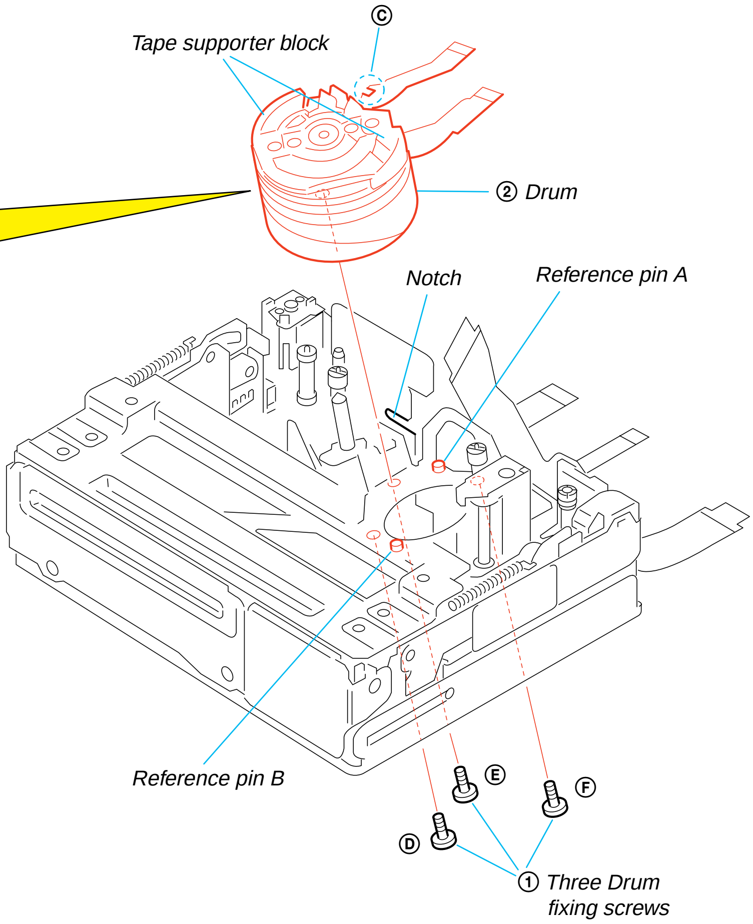
2. Attachment procedure

1) Ensure that head drum fixible board is hooked on the tape supporter block.
2) Hold the tape-supporter block of the drum ② and insert the drum flexible board into the mechanical chassis block assy.
3) Insert the two reference holes A and B of the drum into the reference pins A and B of the drum base assy.
4) Hook the flexible board Ⓒ portion on the notch.
5) Install the three drum fixing screws (M1.4 × 1.3) ① in the order starting from Ⓓ, then Ⓔ, and finally Ⓕ. Then tighten the screws.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
   Return Ⓔ 120°, then apply the screw locking paint (Neji lock).
6) Clean the drum by referring to section2-1.
7) Perform the tape path adjustment. (Refer to “4-4. Tape Path Adjustment”.)

Key Points in Re-assembling

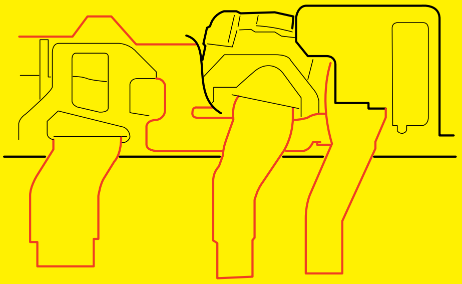

Long hole
(reference A)
Hole
(reference B)

Drum (rear view)


Ⓒ
Tape supporter block
② Drum
Notch
Reference pin A
Reference pin B
Ⓔ
Ⓕ
Ⓓ
① Three Drum fixing screws

Drum Flexible Board Processing

Key Points in Re-assembling



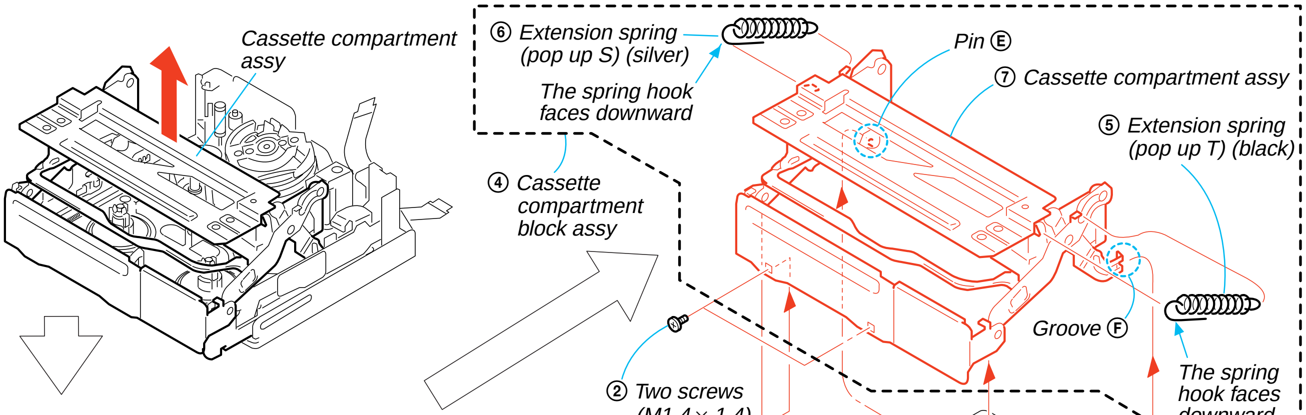
3-3. Cassette Compartment Assy

1. Removal procedure

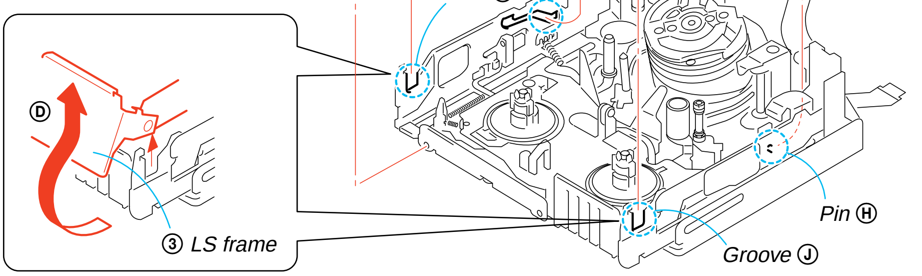
1) Set the EJ mode.
2) Press the cassette compartment down halfway. Pull the cassette compartment damper ① in the direction of the arrow Ⓐ. Then rotate it in the Ⓑ direction, and remove it in the direction of Ⓒ.
3) Remove the two screws (special head screw M1.4 × 1.4) ②.
4) Remove the LS chassis block assy ③ in the direction of the arrow Ⓓ.
5) Remove the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ from the LS chassis groove Ⓖ and pin Ⓗ. Then remove the cassette compartment block assy ④.
6) Remove the tension spring (POP UP T) (black) ⑤.
7) Remove the tension spring (POP UP S) (silver) ⑥.Then remove the cassette compartment assy ⑦.

2. Attachment procedure

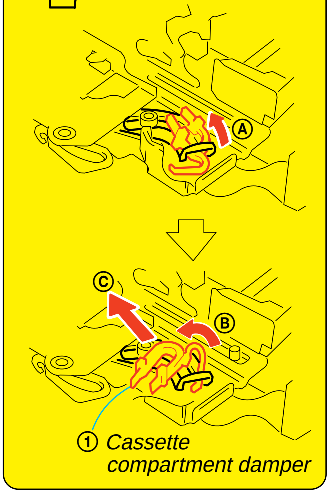
1) Set the ULE mode.
2) Install the tension spring (cassette compartment S) (POP UP S) (silver) ⑥ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
3) Install the tension spring (cassette compartment T) (POP UP T) (black) ⑤ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
4) Install the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ into the LS chassis groove Ⓖ and pin Ⓗ.
5) In the status that the LS block assy ③ is kept open, insert it into the grooves Ⓘ and Ⓙ of the LS chassis block assy.
6) Close the LS chassis block assy ③ in the direction opposite to the arrow Ⓓ, and install it with the two screws (special head screw M1.4 × 1.4) ②.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
7) The cassette compartment down halfway. Pass the Ⓚ portion of the cassette compartment damper ① through the groove at the tip of the cassette compartment. Then pull the Ⓛ portion and fix it using tweezers or something.


Cassette compartment assy
⑥ Extension spring (pop up S) (silver)
The spring hook faces downward
Pin Ⓔ
⑦ Cassette compartment assy
⑤ Extension spring (pop up T) (black)
④ Cassette compartment block assy
Groove Ⓕ
The spring hook faces downward
② Two screws (M1.4 × 1.4)
Groove Ⓖ

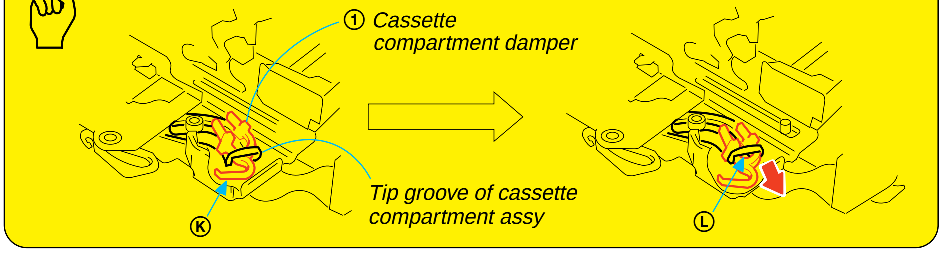
REMOVING THE CASSETTE COMPARTMENT DAMPER


Groove Ⓘ
Ⓓ
③ LS frame
Pin Ⓗ
Groove Ⓙ

Points to be noted


Ⓐ
Ⓒ
Ⓑ
① Cassette compartment damper

Key Points in Re-assembling


① Cassette compartment damper
Tip groove of cassette compartment assy
Ⓚ
Ⓛ

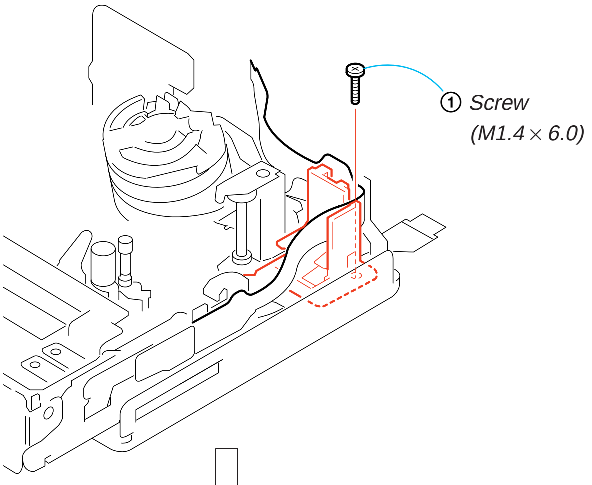
3-4. TG7 Support

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 6.0) ①.
2) Remove the FP-468 flexible board ② from the dowel Ⓐ of the TG7 support.
3) Remove the FP-468 flexible board ② from the groove Ⓑ of the TG7 support.
4) Remove the TG7 support ③ in the direction of the arrow.

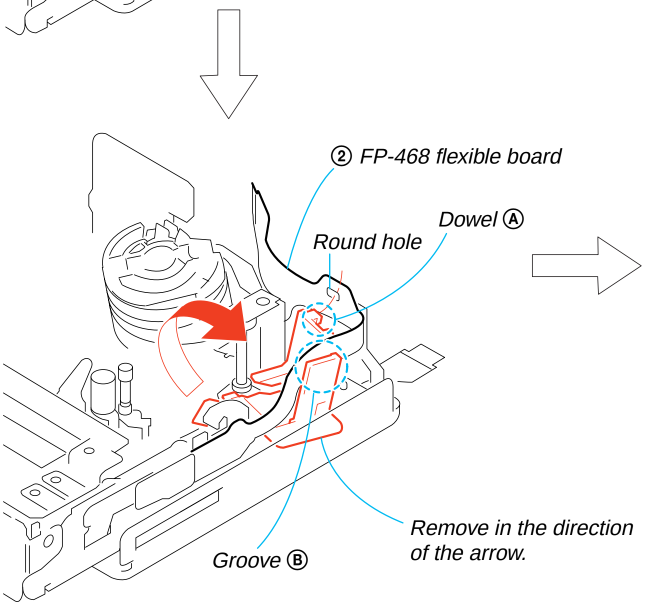
2. Attachment procedure

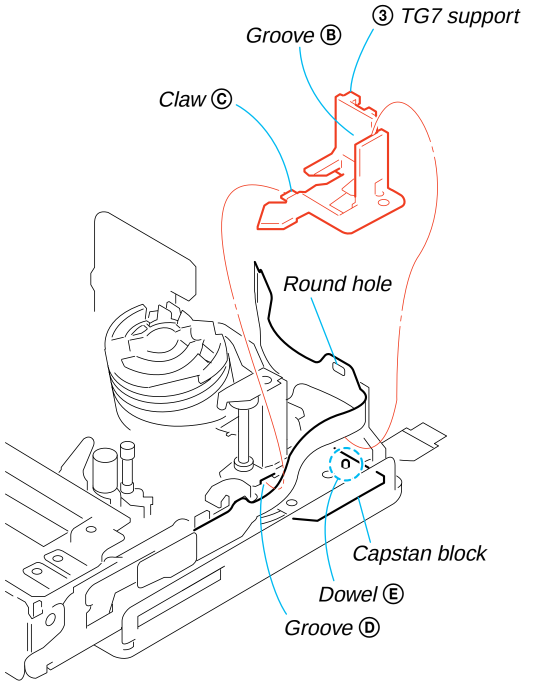
1) Install the FP-468 flexible board ② into the groove Ⓑ of TG7 support ③.
2) Insert the claw Ⓒ of the TG7 support ③ into the groove Ⓓ of the capstan block, and fix it while aligning with the dowel Ⓔ.
3) Align the round hole of the FP-468 flexible board ② with the dowel Ⓐ of the TG7 support ③.
4) Install the screw (special head screw M1.4 × 6.0) ①.
Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)


① Screw
(M1.4 × 6.0)

Points to be noted

- *Be careful not to damage the FP-468 flexible board.*


② FP-468 flexible board
Dowel Ⓐ
Round hole
Groove Ⓑ
Remove in the direction of the arrow.


③ TG7 support
Groove Ⓑ
Claw Ⓒ
Round hole
Capstan block
Dowel Ⓔ
Groove Ⓓ

3-5. Motor Holder Block Assy and L Motor Block Assy

1. Removal procedure

1) Remove soldering at the two locations ①, and remove the FP-467 flexible board from the motor holder block assy (loading) ③.
2) Remove the screw (special head screw M1.4 × 2.0) ②.
3) Remove the motor holder block assy (loading) ③ by pulling it off from the claw Ⓐ.
4) Release the three claws Ⓑ and remove the motor shield ④.
5) Remove the deceleration gear ⑤.
6) Release the claw Ⓒ and remove the worm shaft ⑥.
7) Release the two claws Ⓓ and remove the L motor block assy ⑦ from the motor holder.

2. Attachment procedure

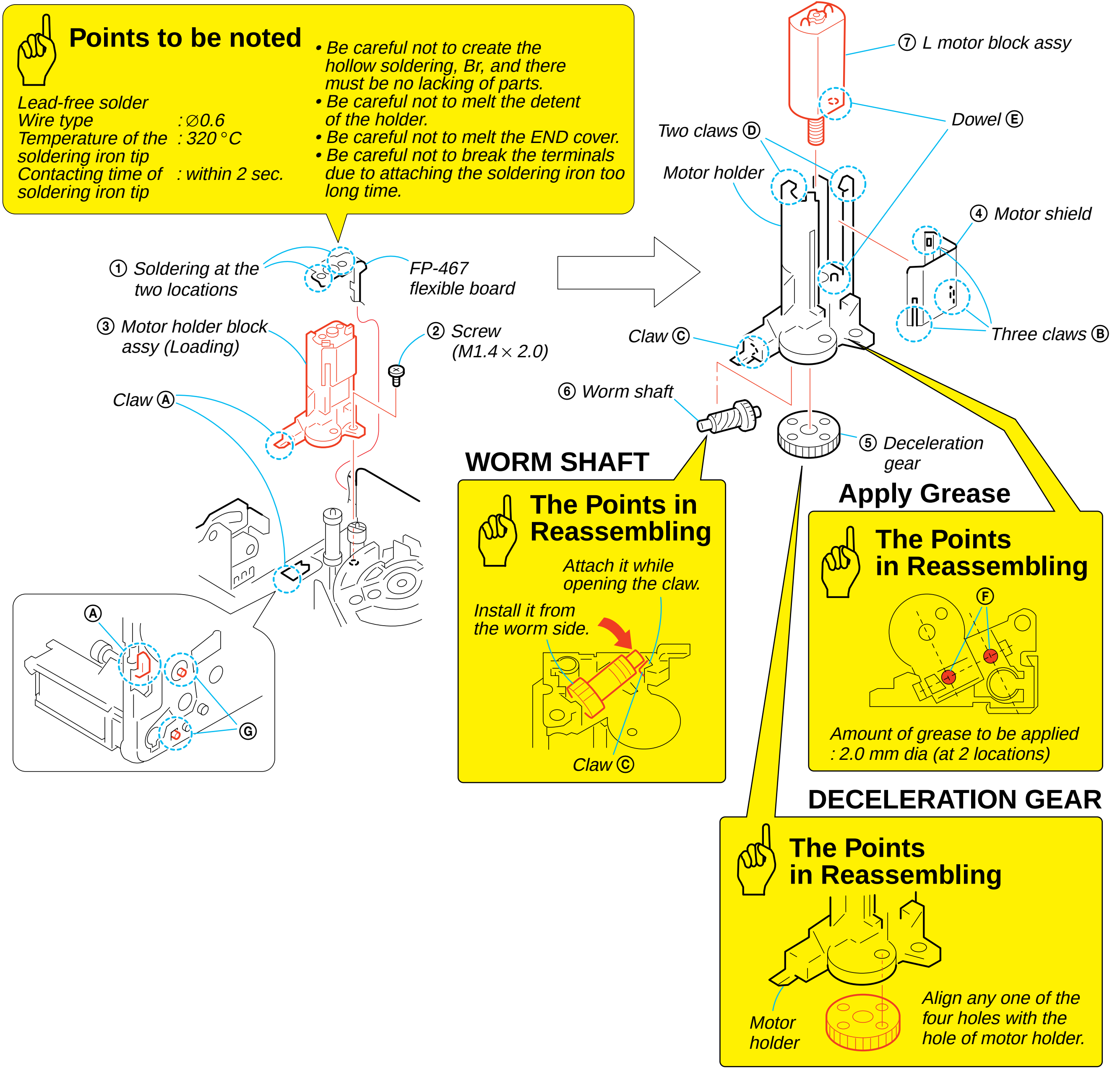
1) Confirm the direction of the L motor block assy ⑦. Align the dowels Ⓔ then install into the motor holder. (Insert the motor worm so that the motor worm does not touch the motor holder, and fix it with two claws Ⓓ.
2) Engage the three claws Ⓑ and install the motor shield.
3) Apply 2.0 g of grease (at 2 locations) to the bottom Ⓕ of the motor holder.
4) Install the worm shaft ⑥ from the worm side and set the claw.
5) Install the reduction gear ⑤.
6) Engage the claw Ⓐ and align the two dowels Ⓖ. Then install the motor holder block assy (loading) ③ in the mechanical chassis block. Install the screw (special head screw M1.4 × 2.0) ②.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
7) Make soldering at the two locations ①. Install the motor holder block assy (loading) ③ into the FP-467 flexible board ④.

Soldering

Points to be noted

Lead-free solder
Wire type : ∅0.6
Temperature of the soldering iron tip : 320 °C
Contacting time of soldering iron tip : within 2 sec.

- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.*
- *Be careful not to melt the detent of the holder.*
- *Be careful not to melt the END cover.*
- *Be careful not to break the terminals due to attaching the soldering iron too long time.*


① Soldering at the two locations
FP-467 flexible board
③ Motor holder block assy (Loading)
② Screw (M1.4 × 2.0)
Claw Ⓐ
Ⓐ
Ⓖ
⑦ L motor block assy
Dowel Ⓔ
Two claws Ⓓ
Motor holder
④ Motor shield
Three claws Ⓑ
Claw Ⓒ
⑥ Worm shaft
⑤ Deceleration gear
Ⓕ
Claw Ⓒ
Motor holder

WORM SHAFT

The Points in Reassembling

Attach it while opening the claw.

Install it from the worm side.

Apply Grease

The Points in Reassembling

Amount of grease to be applied : 2.0 mm dia (at 2 locations)

DECELERATION GEAR

The Points in Reassembling

Align any one of the four holes with the hole of motor holder.

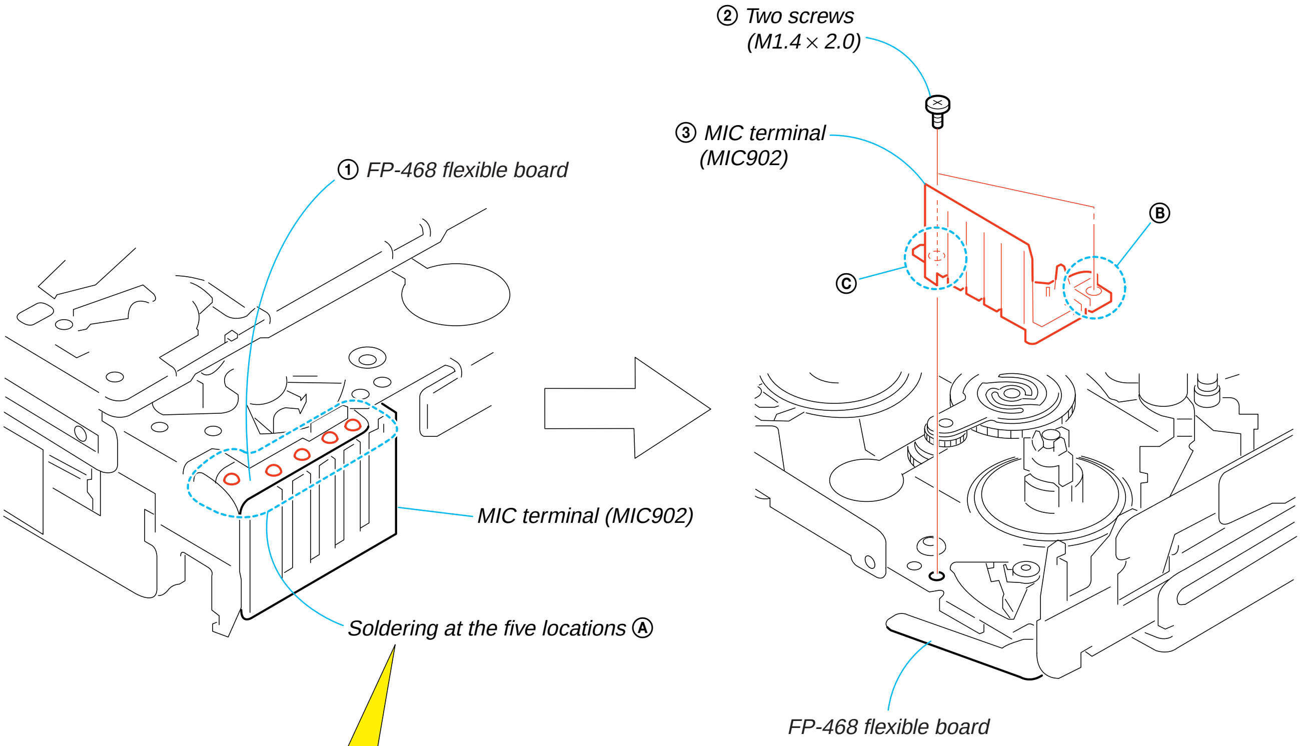
3-6. MIC Terminal (MIC902)

1. Removal procedure

1) Remove soldering at the five locations Ⓐ, and remove the FP-467 flexible board ① from the MIC terminal (MIC902) ③.
2) Remove the screw (special head screw M1.4 × 2.0) ② and remove the MIC terminal (MIC902) ③.

2. Attachment procedure

1) While pressing the top of the MIC terminal (MIC902) ③, tighten the two screws (special head screw M1.4 × 2.0) ② in the order of Ⓑ then Ⓒ.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
2) Make soldering at the five locations Ⓐ, and connect the FP-468 flexible board ① into the MIC terminal (MIC902) .


② Two screws
(M1.4 × 2.0)
③ MIC terminal
(MIC902)
① FP-468 flexible board
Ⓑ
Ⓒ
MIC terminal (MIC902)
Soldering at the five locations Ⓐ
FP-468 flexible board

Soldering

Points to be noted

Use the rubber finger tip cover

Lead-free solder

Wire type	*: ∅0.6*
Soldering iron	*: 941 made by Hakko*
Soldering iron tip	*: T1-1BC*
Temperature of the soldering iron tip	*: 300 ±10 °C*
Contacting time of soldering iron tip	*: within 2 sec*

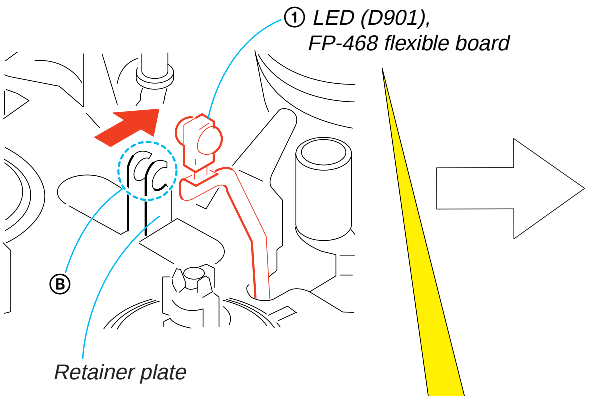
3-7. LED (D901)

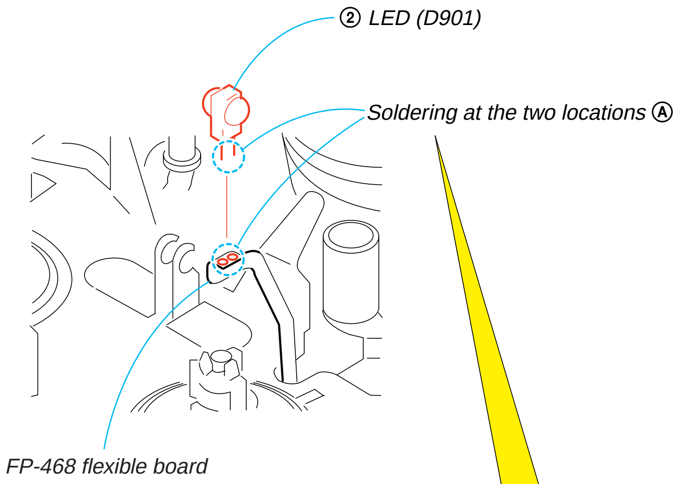
1. Removal procedure

1) Remove LED (D901) and the FP-468 flexible board ① from the retainer plate.
2) Remove soldering at the two locations Ⓐ and remove LED (D901) ②.

2. Attachment procedure

1) Install the LED (D901) ② to the FP-468 flexible board by making soldering at the two locations Ⓐ.
2) Fold the FP-468 flexible board ① beneath the LED (D901) with finger tip so that it is inserted into the Ⓑ portion of the retainer plate.


① LED (D901),
FP-468 flexible board
Ⓑ
Retainer plate


② LED (D901)
Soldering at the two locations Ⓐ
FP-468 flexible board

LED (D901), FP-468 FLEXIBLE BOARD

Points to be noted

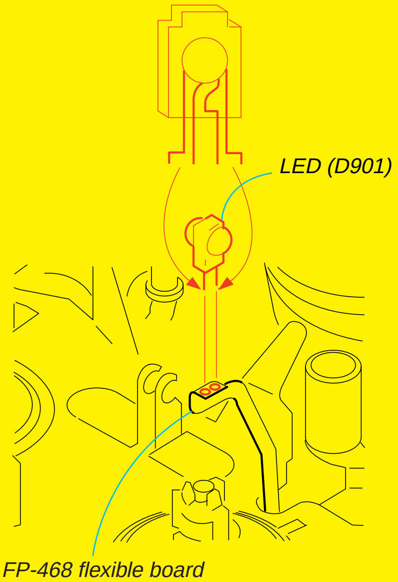
- *There must be no solder crack.*
- *There must be no scars and no stains.*
- *The flexible board must have no breakdown.*
- *The retainer plate and LED block must have no deformation.*

Soldering

Points to be noted

Rubber finger tip protection cover must be used.
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Soldering iron tip: T1-1BC
Temperature of the soldering iron tip: 300 ±10 °C
Contacting time of soldering iron tip: within 2 sec.

Direction of the terminal is specified.


LED (D901)
FP-468 flexible board

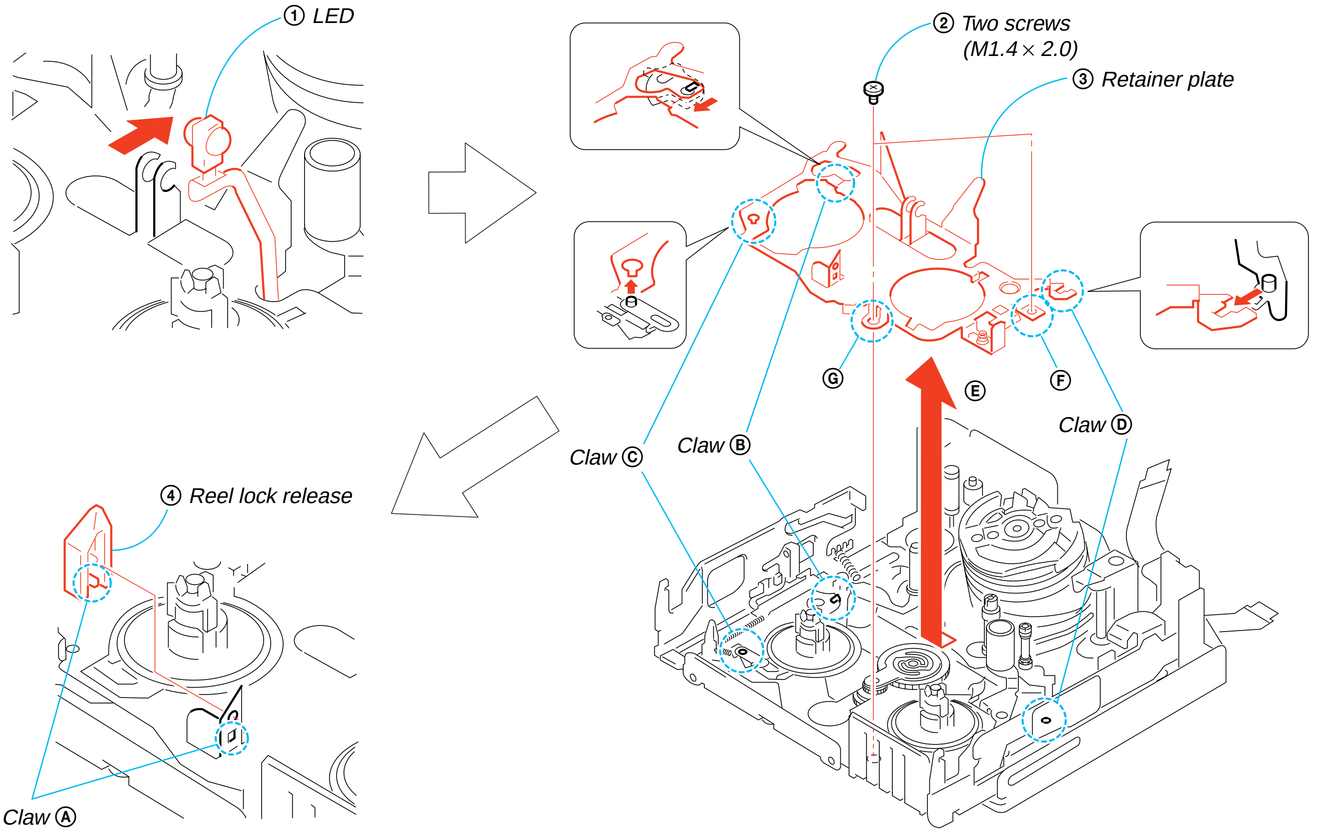
3-8. Retainer Plate

1. Removal procedure

1) Remove LED ① from the retainer plate.
2) Remove the two screws (special head screw M1.4 × 2.0) ②.
3) Release the three claws Ⓑ, Ⓒ and Ⓓ, and remove the retainer plate ③ in the direction of the arrow mark Ⓔ.
4) Release the claw Ⓐ and remove the reel lock release ④.

2. Attachment procedure

1) Install the reel lock release ④.
2) Place the retainer plate ③ on top of the LS chassis block assy and engage the three claws in the order starting from Ⓓ, Ⓒ and Ⓑ.
3) Install the two screws (special head screw M1.4 × 2.0) ② in the order starting from Ⓕ then Ⓖ.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
4) Install LED ① to the retainer plate.



REEL LOCK RELEASE

Key Points
in Re-assembling

- *The reel lock release should not be re-used.*
- *The retainer plate must not have any deformation.*
- *The reel lock release should be fully installed.*
  (Should not be left in the half-installed state.)

RETAINER PLATE

Key Points
in Re-assembling

- *All claws must be fully engaged.*
  (Caution : No claws should be left disengaged.)
- *The flexible board should not be pinched by anything.*
- *The retainer plate must not touch with the MIC terminal.*

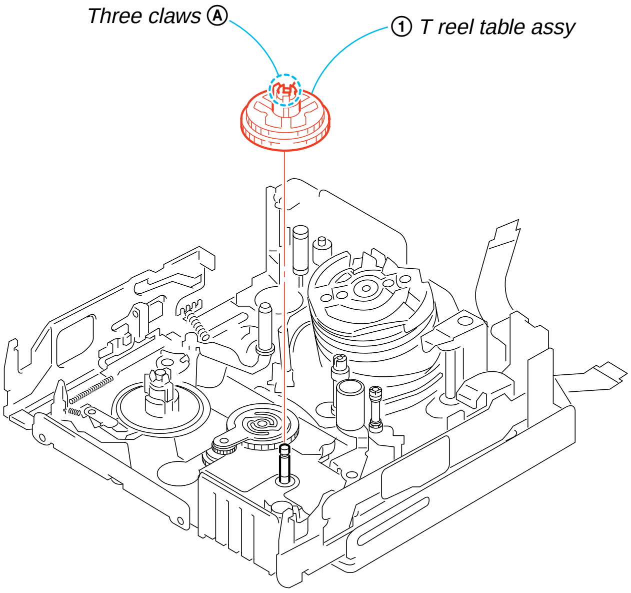
3-9. T Reel Table Assy

1. Removal procedure

1) Remove the T reel table assy ①, averting three claws Ⓐ.

2. Attachment procedure

1) Confirm that the supplied part is really the T reel table assy ①. Insert the T reel table assy ① into the T reel shaft. Install the T reel table assy ① and lock it at the position where you can hear the snapping sound. You can find the locking position by rotating the T reel table assy ①.



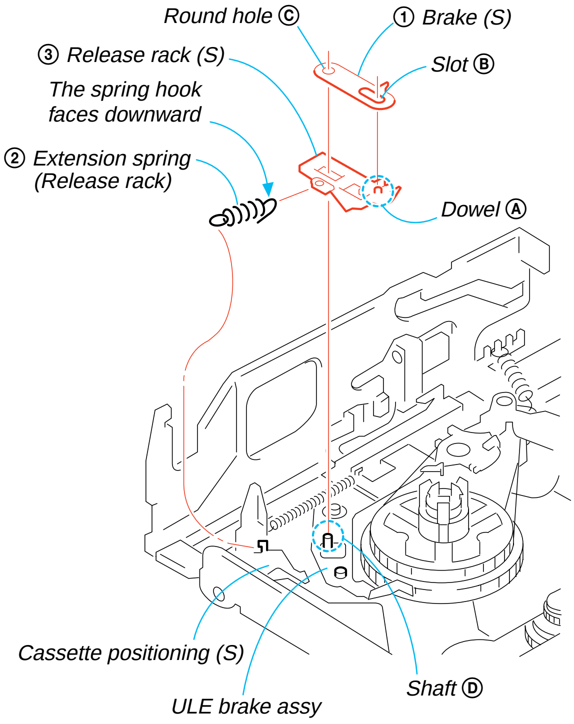
3-10. Brake (S) and Release Rack (S)

1. Removal procedure

1) Remove the brake (S) ①.
2) Remove the tension spring (release rack (S)) ②.
3) Remove the release rack (S) ③.

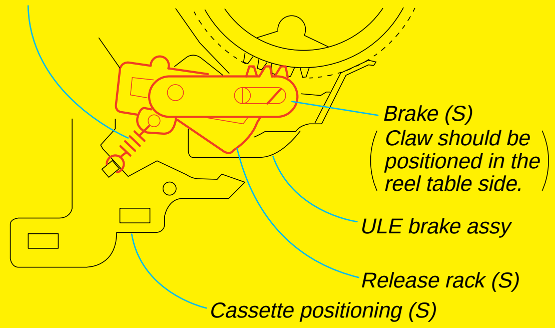
2. Attachment procedure

1) Remove the release rack (S) ③ by holding it with a ultra precision tweezers. Install the tension spring (release rack) ② while being careful of the installation direction of the tension spring.
2) Hook the tension spring (release rack) ② on the hook of the cassette positioning (S), and then install it in the ULE brake assy.
3) Insert the slot Ⓑ in the dowel Ⓐ of the release rack (S) ③. Insert the round hole Ⓒ into the pivot shaft Ⓓ and install the brake (S) ①.
   (Installation direction: Claw should be positioned in the reel table side.)


Round hole Ⓒ
① Brake (S)
③ Release rack (S)
Slot Ⓑ
The spring hook faces downward
② Extension spring (Release rack)
Dowel Ⓐ
Cassette positioning (S)
ULE brake assy
Shaft Ⓓ

Key Points in Re-assembling

Extension spring
(Release rack)
(Be careful not to stretch the spring hook.)


Brake (S)
Claw should be positioned in the reel table side.
ULE brake assy
Release rack (S)
Cassette positioning (S)

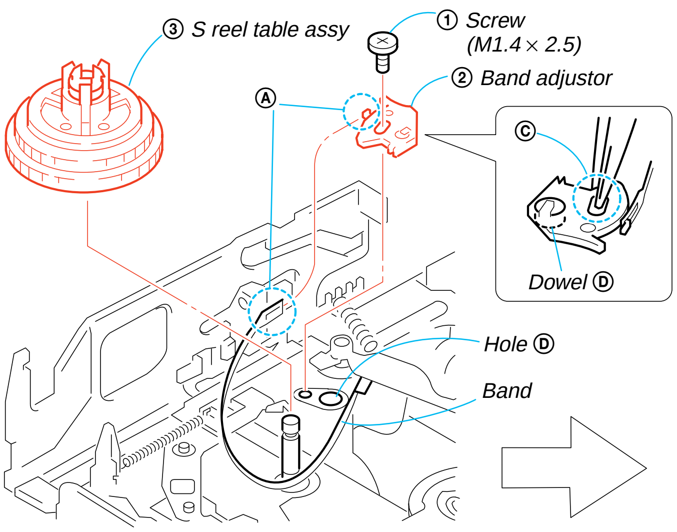
3-11. Band Adjuster, S Reel Table Assy and TG2 Arm Block Assy

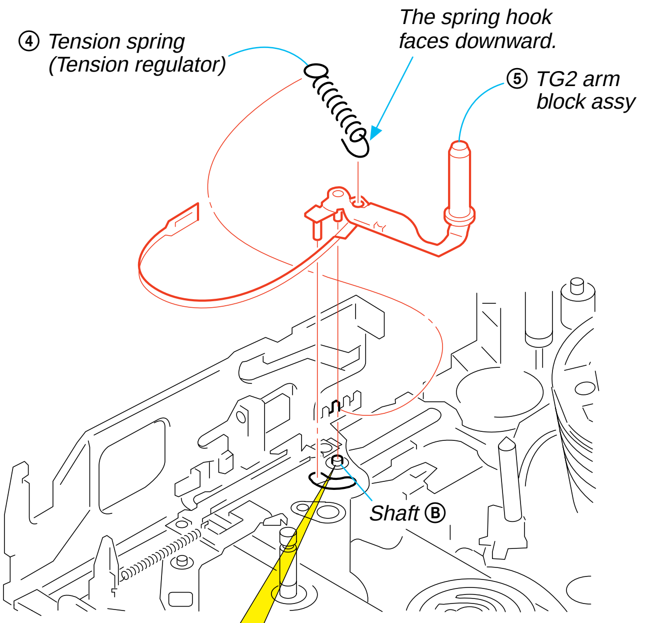
1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.5) ①.
2) Remove the band Ⓐ of the TG2 arm block and remove the band adjuster ②.
3) Remove the S reel table assy ③.
4) Remove the tension spring (tension regulator spring) ④.
5) Remove the TG2 arm block assy ⑤.

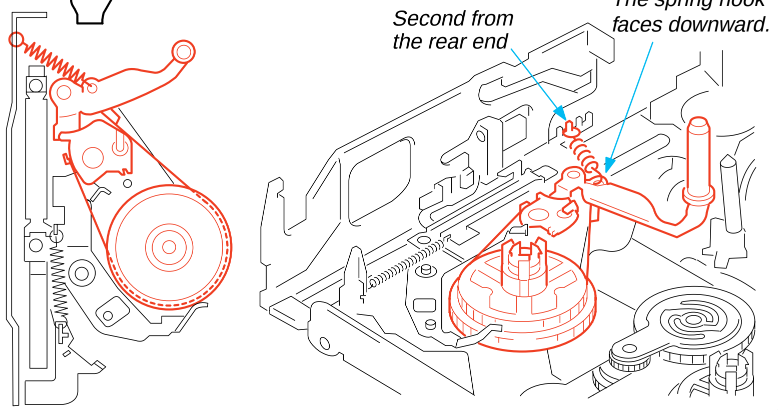
2. Attachment procedure

1) Install the S reel table assy ③.
2) Apply grease in the TG2 arm pivot shaft Ⓑ.
   Amount of grease: a ball of 1.0 mm diameter of grease
   Re-application of grease to the point which is greased already before is not necessary.
3) Hold the TG2 arm block assy ⑤ with tweezers and insert it in the TG2 arm pivot shaft Ⓑ.
4) Hook the tension spring (tension regulator spring) ④ on the TG2 arm block ⑤ with tweezers so that the hook faces downward.
5) Hook the tension spring (tension regulator spring) ④ on the LS chassis block assy (the second hook from the rear end).
6) Hook the Ⓐ portion of the band on the claw of the band adjuster ②.
7) Hold the band adjuster with tweezers as shown in Ⓒ. Insert the band into groove of the S reel table assy while rotating it, and insert the adjuster's dowel into the dowel hole Ⓓ of the LS chassis block assy.
8) Install the band adjuster ② with the screw (special head screw M1.4 × 2.5) ①.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
9) Perform the TG2 FWD Position Adjustment referring to section 4-1.
10) Perform the FWD Back-tension Adjustment referring to section 4-4.
11) Perform the Reel Torque Check referring to section 4-2.


③ S reel table assy
① Screw
(M1.4 × 2.5)
② Band adjustor
Ⓐ
Ⓒ
Dowel Ⓓ
Hole Ⓓ
Band


④ Tension spring
(Tension regulator)
The spring hook
faces downward.
⑤ TG2 arm
block assy
Shaft Ⓑ

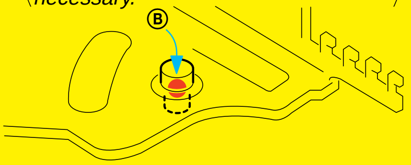
Key Points in Re-assembling


Second from
the rear end
The spring hook
faces downward.

Apply Grease

Points to be noted

During installation, apply grease in the TG2 arm pivot shaft hole.
Amount of grease:
a ball of grease of 1.0 mm diameter
(Re-application of grease to the point which is greased already before is not necessary.)



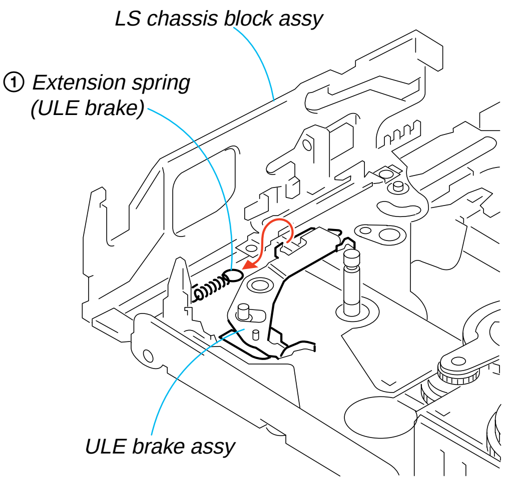
3-12. ULE Brake Assy

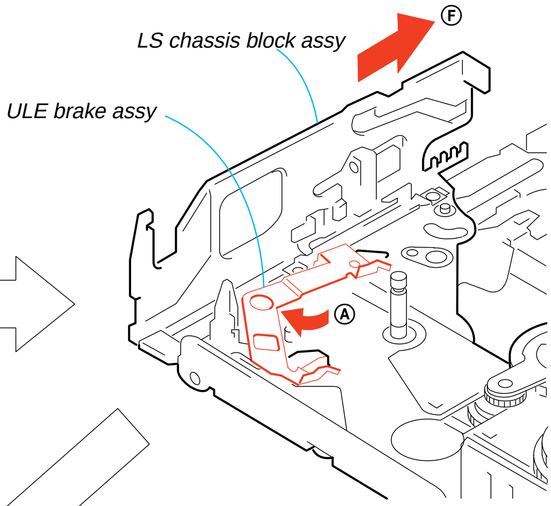
1. Removal procedure

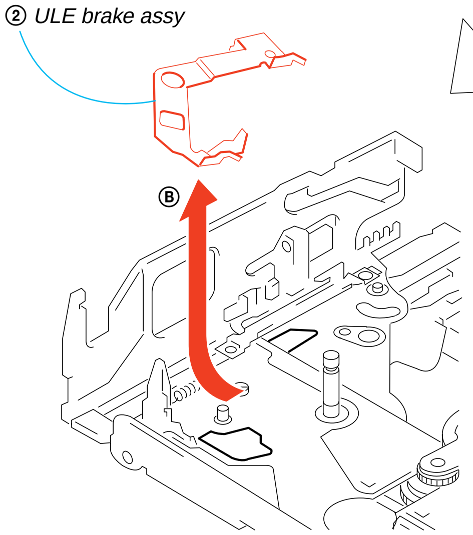
1) Remove the tension spring (ULE brake) ① from the ULE brake assy ②.
2) Slide the LS chassis block assy slightly in the direction of the arrow Ⓕ.
3) Slant the ULE brake assy ② in the direction of the arrow Ⓐ and remove it by sliding it in the direction of Ⓑ.

2. Attachment procedure

1) Confirm the front side and the rear side of the ULE brake assy ②. Hold it correctly with tweezers. Insert the portion Ⓒ into the hole Ⓓ of the LS chassis block assy and install the center hole in the Ⓔ of the chassis.
2) Install the tension spring (ULE brake assy) ①.

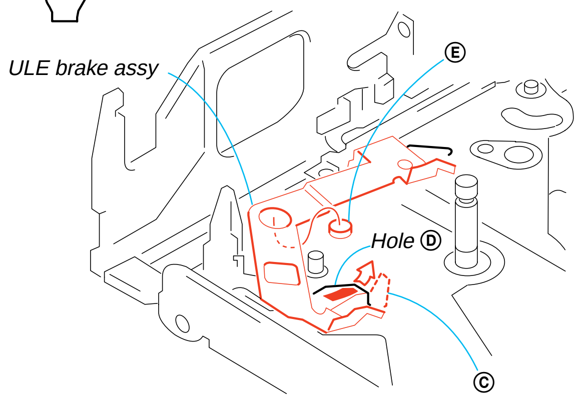

LS chassis block assy
① Extension spring (ULE brake)
ULE brake assy


Ⓕ
LS chassis block assy
ULE brake assy
Ⓐ


② ULE brake assy
Ⓑ

ULE BRAKE ASSY

Key Points in Re-assembling


ULE brake assy
Ⓔ
Hole Ⓓ
Ⓒ

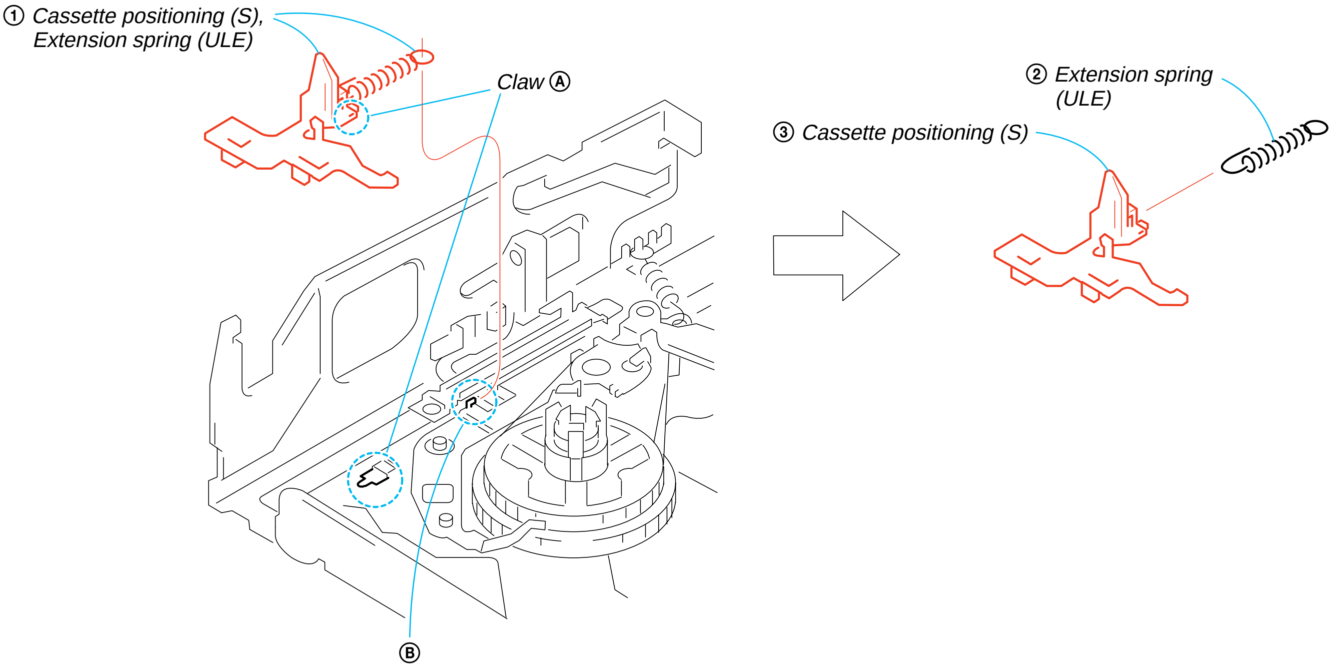
3-13. Cassette Positioning (S)

1. Removal procedure

1) Remove the tention spring (ULE brake) ② from the hook Ⓑ of ULE brake assy.
2) Slide the cassette positioning (S), then remove the cassette positioning (S) and tension spring (ULE brake) ① all together at the same time.
3) Remove the tension spring (ULE brake) ② from the cassette positioning (S) ③.

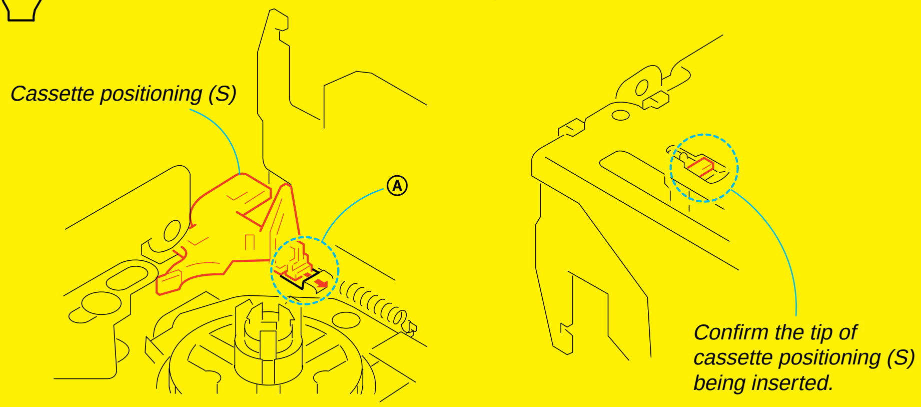
2. Attachment procedure

1) Hook the tension spring (ULE brake) ② on the cassette positioning (S) ③ with tweezers.
2) Hold the cassette positioning (S) ③ with tweezers and insert the top tip of the claw into the LS chassis block assy Ⓐ. Lock it by sliding it in.
3) Install the other end of the tension spring (ULE brake) ② on the hook Ⓑ.


① Cassette positioning (S),
Extension spring (ULE)
Claw Ⓐ
② Extension spring
(ULE)
③ Cassette positioning (S)
Ⓑ

CASSETTE POSITIONING (S)

Key Points in Re-assembling


Cassette positioning (S)
Ⓐ
Confirm the tip of
cassette positioning (S)
being inserted.

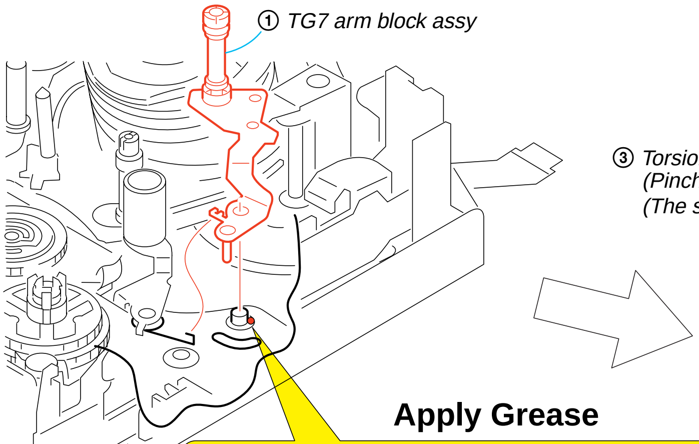
3-14. TG7 Arm Block Assy and Pinch Arm Assy

1. Removal procedure

1) Remove the TG7 arm block assy ①.
2) Rotate the pinch arm assy ② in the direction of the arrow Ⓐ and remove it.
3) Remove the torsion spring (pinch return) ③.

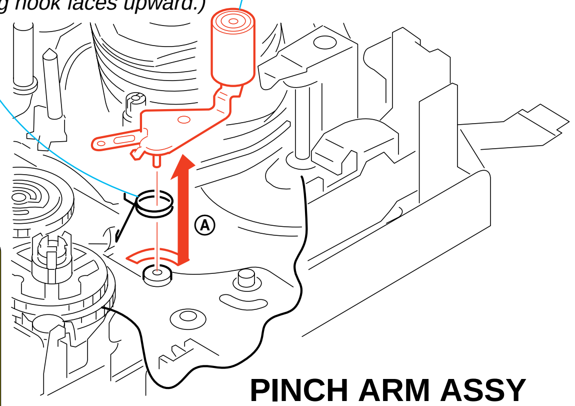
2. Attachment procedure

1) Hold the torsion spring (pinch return) ③ with tweezers. Confirm that the hook faces upward and install it in the bearing.
2) Hold the pinch arm assy ② as shown in Ⓓ and install it in the pinch arm bearing.
3) Hold the torsion coil spring (pinch return) ③ with tweezers and install it as shown in Ⓔ.
4) Apply grease on the supporting surface of the TG7 pivot shaft.
   Amount of grease: a ball of grease of 0.5 mm diamte
   Re-application of grease to the point which is greased already before is not necessary.
5) Hold the TG7 arm block assy ① as shown in Ⓑ and insert it in the pivot shaft of the TG7 arm.
6) Hold the torsion spring (pinch return) ③ with tweezers and install it on the hook of the TG7 arm block assy ① as shown in Ⓒ.
7) Confirm that the torsion spring (pinch return) ③ does not override on the pinch supporting shaft.



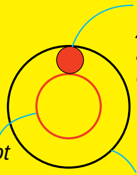
③ Torsion spring
(Pinch return)
(The spring hook faces upward.)

② Pinch arm assy



Apply Grease

Points to be noted



Grease application point
Amount of grease:
a ball of grease of 0.5 mm diameter

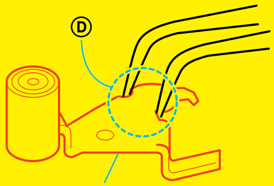
(Re-application of grease to the point which is greased already before is not necessary.)

TG7 pivot shaft

Supporting surface

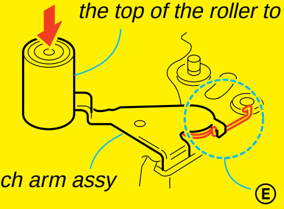
PINCH ARM ASSY

Key Points in Re-assembling



Pinch arm assy

When installing it, do not press the top of the roller to install it.

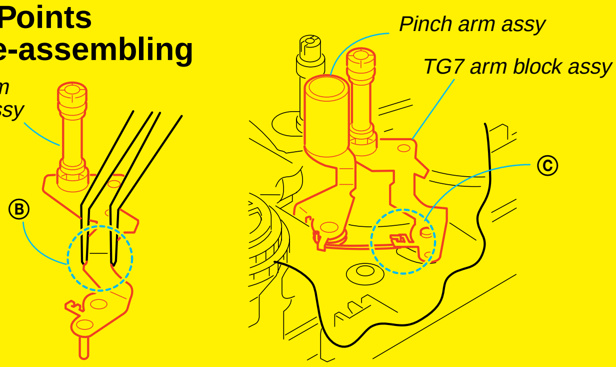


Pinch arm assy

TG7 ARM BLOCK ASSY

Key Points in Re-assembling

TG7 arm block assy



Pinch arm assy

TG7 arm block assy

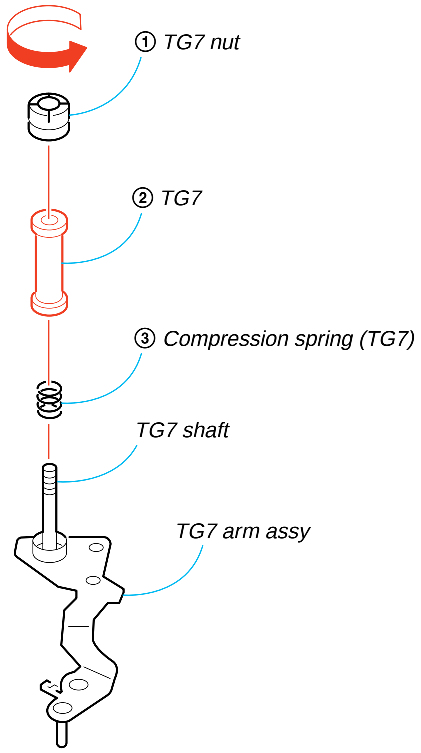
3-15. TG7

1. Removal procedure

1) Remove the TG7 nut ① by turning it in the direction of the arrow.
2) Remove the TG7 ② and compression coil spring ③ from the TG7 arm block assy.

2. Attachment procedure

1) Install the compression coil spring ③ and TG7 ② in the TG7 shaft of the TG7 arm block assy.
2) Install the TG7 nut ① by turning it in the opposite direction of the arrow.


① TG7 nut
② TG7
③ Compression spring (TG7)
TG7 shaft
TG7 arm assy

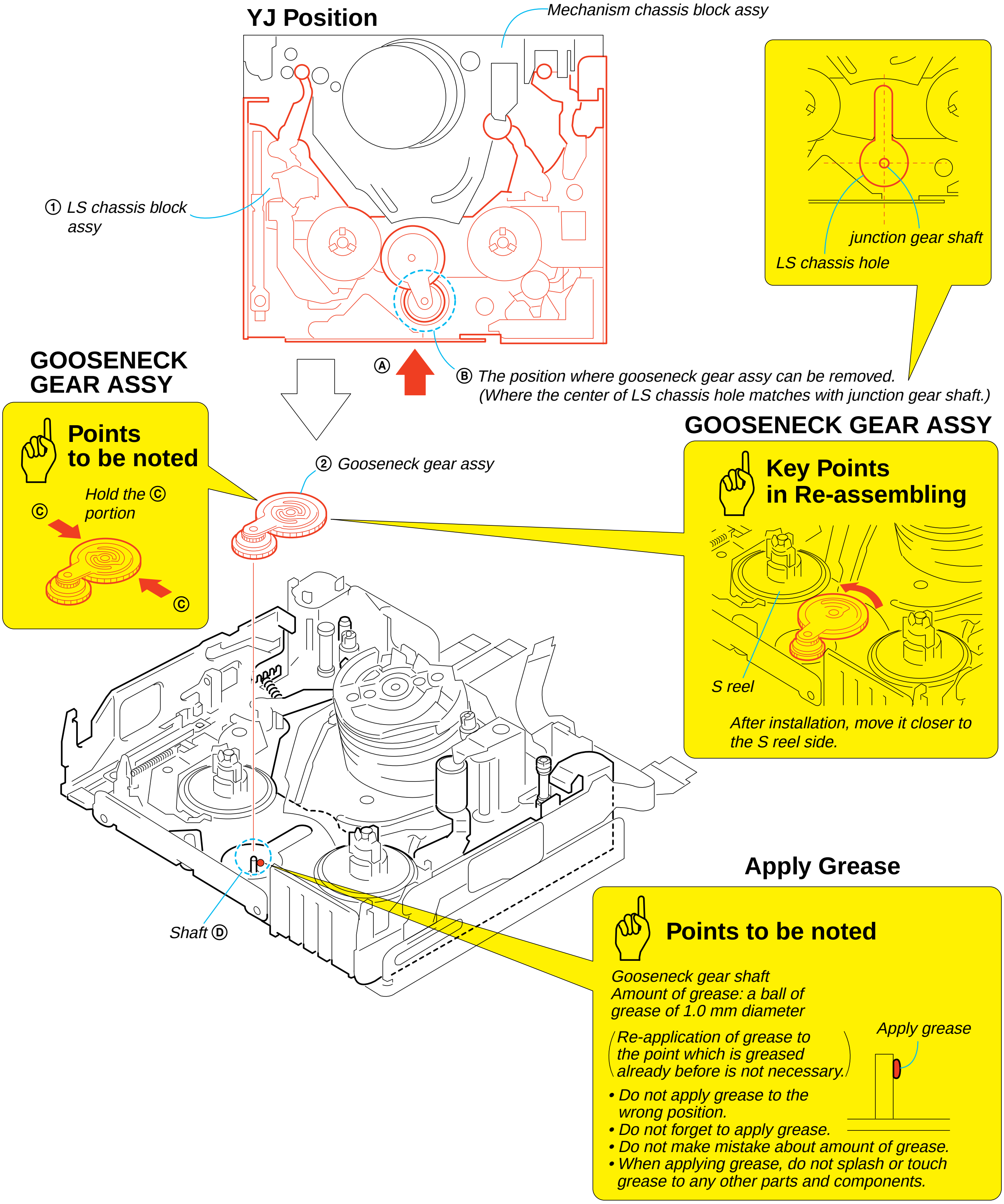
3-16. Gooseneck Gear Assy

1. Removal procedure

1) Move the LS chassis block assy ① in the direction of the arrow Ⓐ to make it in YJ position.
YJ position: The position Ⓑ where gooseneck gear assy can be removed. (where the center of LS chassis hole matches with junction gear shaft.)
2) Remove the gooseneck gear assy, holding it with Ⓒ.

2. Attachment procedure

1) Apply grease to the gooseneck gear shaft Ⓓ portion.
Amount of grease: a ball of grease of 1.0 mm diameter
Need no re-application to one which applied already.
2) Install the gooseneck gear assy, holding it with Ⓒ in the gooseneck gear shaft.
3) Move it closer to the S reel.



YJ Position
Mechanism chassis block assy
① LS chassis block assy
junction gear shaft
LS chassis hole
Ⓐ
GOOSENECK GEAR ASSY
Points to be noted
Hold the Ⓒ portion
Ⓒ
Ⓒ
② Gooseneck gear assy
GOOSENECK GEAR ASSY
Key Points in Re-assembling
S reel
Shaft Ⓓ
Apply Grease
Points to be noted
Apply grease

Ⓑ *The position where gooseneck gear assy can be removed.*
(Where the center of LS chassis hole matches with junction gear shaft.)

After installation, move it closer to the S reel side.

Gooseneck gear shaft
Amount of grease: a ball of grease of 1.0 mm diameter

(Re-application of grease to the point which is greased already before is not necessary.)

- *Do not apply grease to the wrong position.*
- *Do not forget to apply grease.*
- *Do not make mistake about amount of grease.*
- *When applying grease, do not splash or touch grease to any other parts and components.*

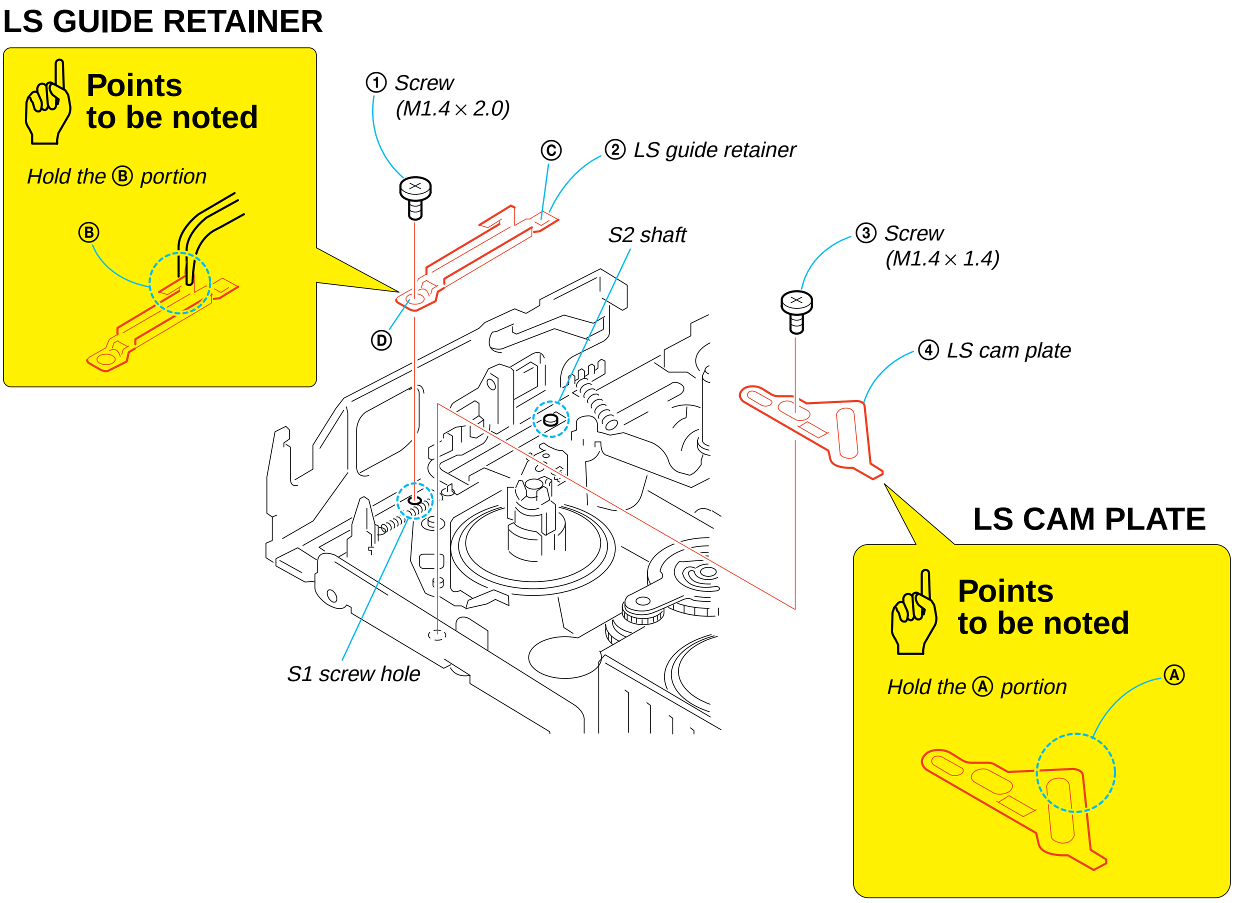
3-17. LS Guide Retainer and LS Cam Plate

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.0) ①. and remove the LS guide retainer ②.
2) Remove the screw (special head screw M1.4 × 1.4) ③ and remove the LS cam plate ④.

2. Attachment procedure

1) Hold the LS cam plate with Ⓐ and place it aligning the two dowels. Tighten the screw (special head screw M1.4 × 1.4) ③ in half way.
2) Adjust the LS cam plate by referring to section 4-5.
3) Hold the LS guide retainer ② with Ⓑ and hook its key hole Ⓒ on the S2 shaft, and align the hole Ⓓ to S1 screw hole.
4) Install the screw (special head screw M1.4 × 2.0) ① in the S1 screw hole.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)


LS GUIDE RETAINER
Points to be noted
Hold the Ⓑ portion
Ⓑ
① Screw (M1.4 × 2.0)
Ⓒ
② LS guide retainer
S2 shaft
Ⓓ
③ Screw (M1.4 × 1.4)
④ LS cam plate
S1 screw hole
LS CAM PLATE
Points to be noted
Hold the Ⓐ portion
Ⓐ

3-18. LS Chassis Block Assy and Mechanical Chassis Block Assy

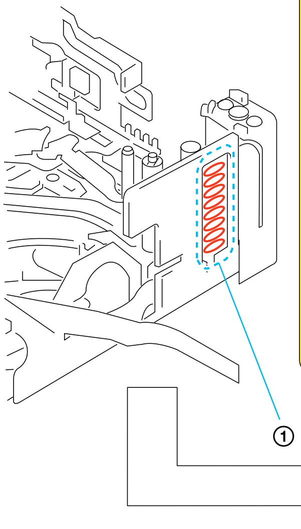
1. Removal procedure

1) Remove soldering at the eight locations ①.
2) Release the claw Ⓐ and remove the FP-468 flexible board ② from the mechanical chassis block assy in the direction of the arrow Ⓑ.
3) Raise the front portion of the LS chassis block assy ③ so that the pin Ⓒ of the LS arm assy is removed. Move the LS chassis block assy ③ in the direction of the arrow Ⓓ and release the three pins of Ⓔ, Ⓕ and Ⓖ, and also groove.
4) Remove the LS chassis block ④ from the mechanical chassis block assy.

2. Attachment procedure

1) Apply grease to the GL drive arm Ⓙ portion and mechanism chassis block L.
   Amount of grease: a ball of grease of 1.0 mm diameter
2) Rotate the T reel table assy in the counter-clockwise direction and move the brake T block to the position shown in Fig. 1. (Fig. 1)
3) Move the TG2 arm block to the inner side. (Fig. 2)
4) Hold the cam groove of the GL driving arm with tweezers through LS chassis hole Ⓚ and pick it up.
5) Insert the GL drive shaft into the cam groove of the raised GL drive arm using the trace mark of caulking on the side of the S reel of the LS chassis block assy. (Fig. 3)
6) Align the pins Ⓔ, Ⓕ and Ⓖ with the grooves.
7) Align the left side S1 screw hole and S2 shaft with the goove Ⓗ of the LS chassis block assy.
8) Move the LS chassis block assy in the direction of the arrow Ⓘ so that the YJ position is obtained.
   YJ position: The position where gooseneck gear can be installed. (Ref. 3-16)
9) Align the claw Ⓐ and install the FL-468 flexible board ② in the mechanism chassis block assy.
10) Connect the soldering at the eight locations ① and install the FP-467 flexible board and the FP-468 flexible board ②.

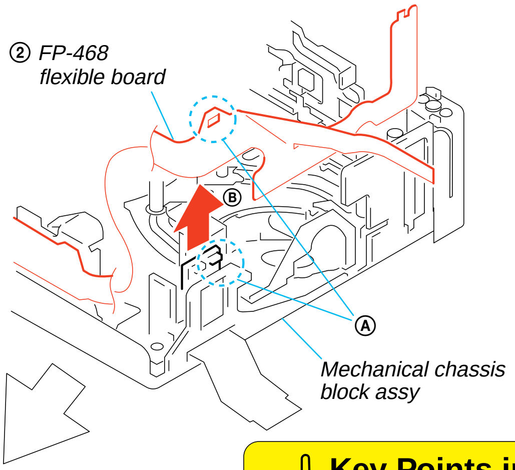
Soldering



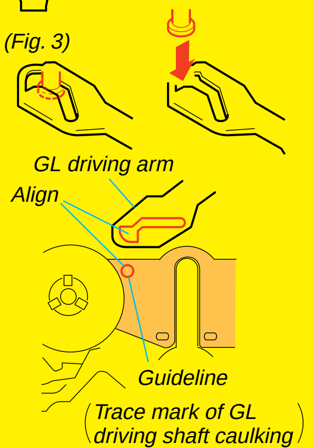
Points to be noted

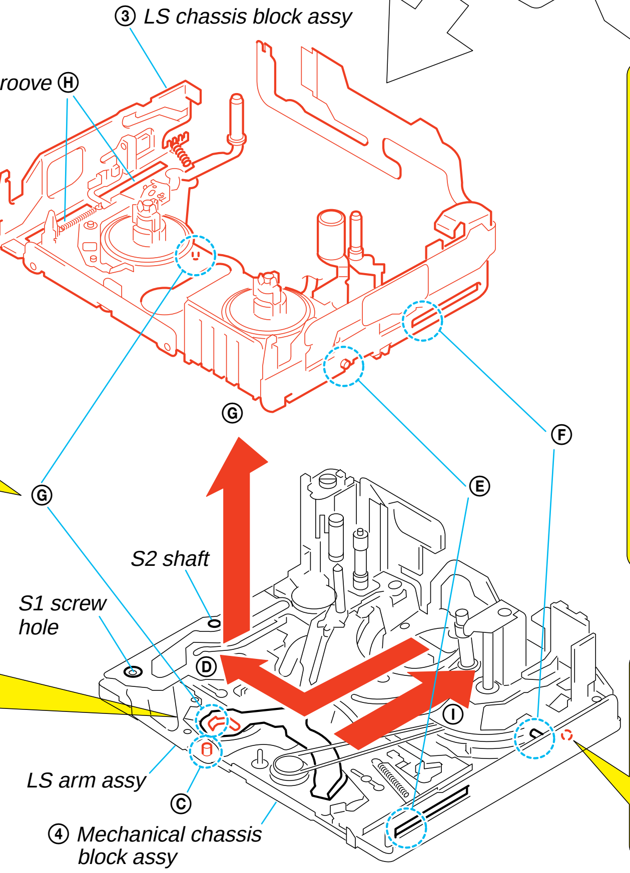
Lead-free solder
Wire type: ∅0.6
Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.
- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.*
- *Be careful not to crash the grip jog to the TG1 guide.*

① Soldering at the eight locations.

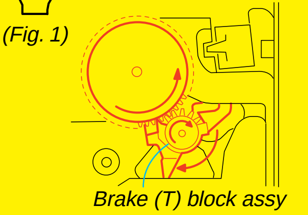

② FP-468 flexible board
Ⓑ
Ⓐ
Mechanical chassis block assy

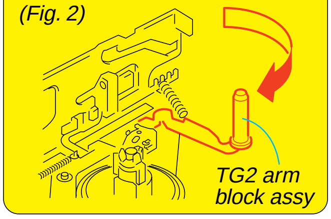
Key Points in Re-assembling


(Fig. 3)
GL driving arm
Align
Guideline
Trace mark of GL driving shaft caulking


③ LS chassis block assy
Groove Ⓗ
Ⓖ
Ⓖ
Ⓕ
Ⓔ
S2 shaft
S1 screw hole
Ⓓ
Ⓘ
LS arm assy
Ⓒ
④ Mechanical chassis block assy

Key Points in Re-assembling

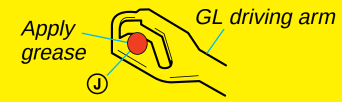

(Fig. 1)
Brake (T) block assy


(Fig. 2)
TG2 arm block assy

Apply Grease

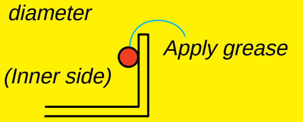
Points to be noted

Amount of grease:
a ball of grease of 1.0 mm diameter


Apply grease
GL driving arm
Ⓙ

Apply Grease

Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter


Apply grease
(Inner side)

3-19. Brake (T) Block Assy

1. Removal procedure

1) Hold the Ⓐ portion and remove the brake (T) block assy ①.

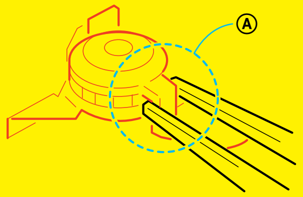
2. Attachment procedure

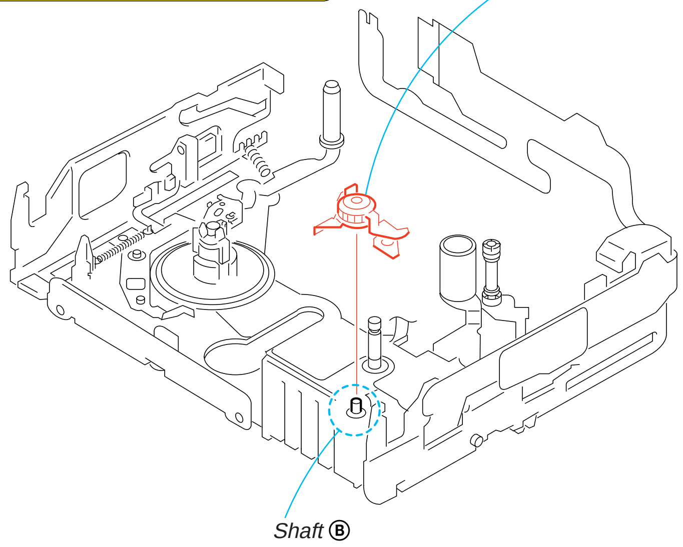
1) Hold the Ⓐ portion of the brake (T) block assy ①. While inserting the slot portion into the notch of the LS chassis block assy, install it into the shaft Ⓑ.
2) After completing installation of T reel table assy (Refer to 3-9.), rotate the brake (T) block assy ① in the clockwise direction by rotating T reel talbe assy in the counter-clockwise direction. (Fig. 1)

BRAKE (T) BLOCK ASSY

Points to be noted

Hold the Ⓐ portion

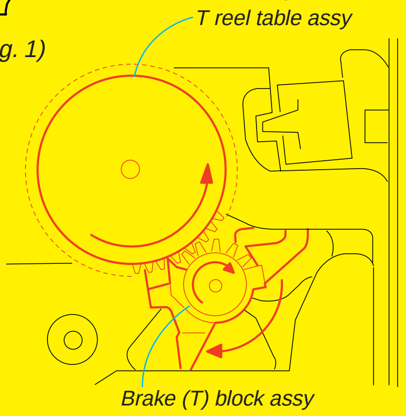




BRAKE (T) BLOCK ASSY

Key Points in Re-assembling

(Fig. 1)



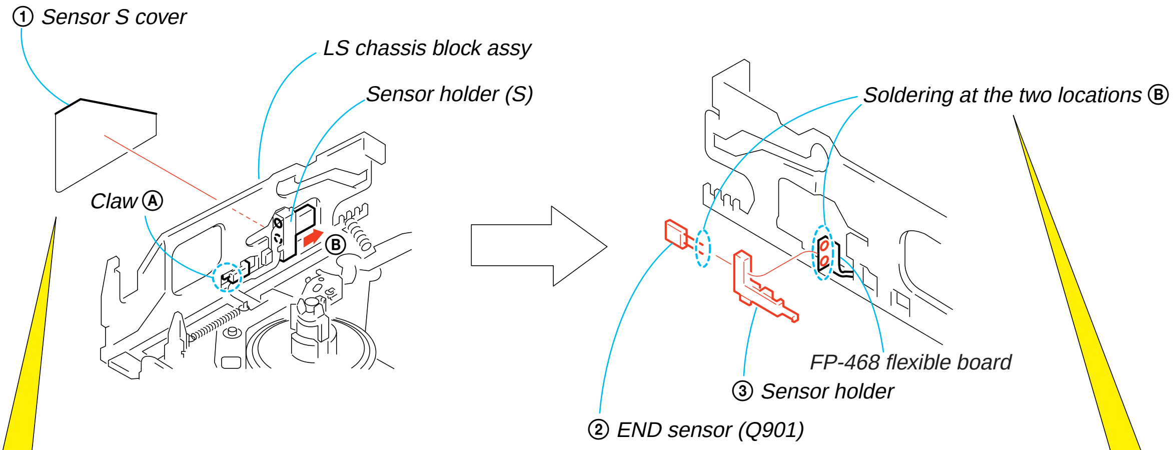
3-20. END Sensor (Q901)

1. Removal procedure

1) Peel off the sensor S cover ①.
2) Release the claw Ⓐ of the sensor holder (S) ③. Remove it from the LS chassis block assy by sliding it in the direction of the arrow Ⓑ.
3) Remove soldering at the two locations and remove the END sensor (Q901) ② and the sensor holder (S) ①.

2. Attachment procedure

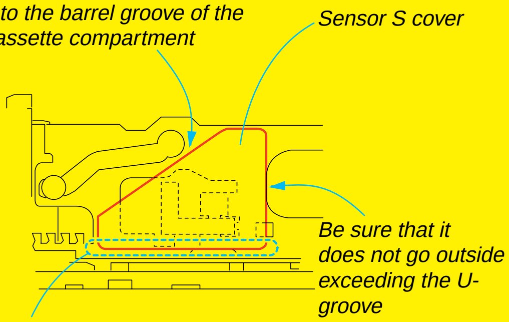
1) Connect the END sensor (Q901) ② and the sensor holder (S) ③ to the FP-468 flexible board by soldering them at the two locations Ⓑ.
2) Slide the END sensor (Q901) ② and the sensor holder (S) ③ in the direction of the arrow Ⓒ to install them in the LS chassis block assy.
3) Hook the flexible board on the end of the Ⓓ portion.
4) Attach the sensor S cover ①.


① Sensor S cover
LS chassis block assy
Sensor holder (S)
Claw Ⓐ
Ⓑ
Soldering at the two locations Ⓑ
FP-468 flexible board
③ Sensor holder
② END sensor (Q901)

SENSOR S COVER

Key Points in Re-assembling

Be sure that it does not intrude into the barrel groove of the cassette compartment

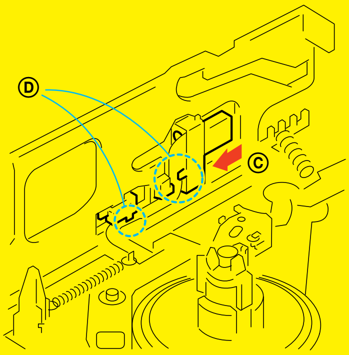

Sensor S cover

Be sure that it does not go outside exceeding the U-groove

Be sure that is does not intrude into the L-edge of the chassis

END SENSOR (Q901), SENSOR HOLDER (S)

Key Points in Re-assembling



Soldering

Points to be noted

Use the rubber finger tip cover Lead-free solder

Wire type	*: ∅0.6*
Soldering iron	*: 941 made by Hakko*
Soldering iron tip	*: T1-1BC*
Temperature of the soldering iron tip	*: 300 ±10 °C*
Contacting time of soldering iron tip	*: within 2 sec*

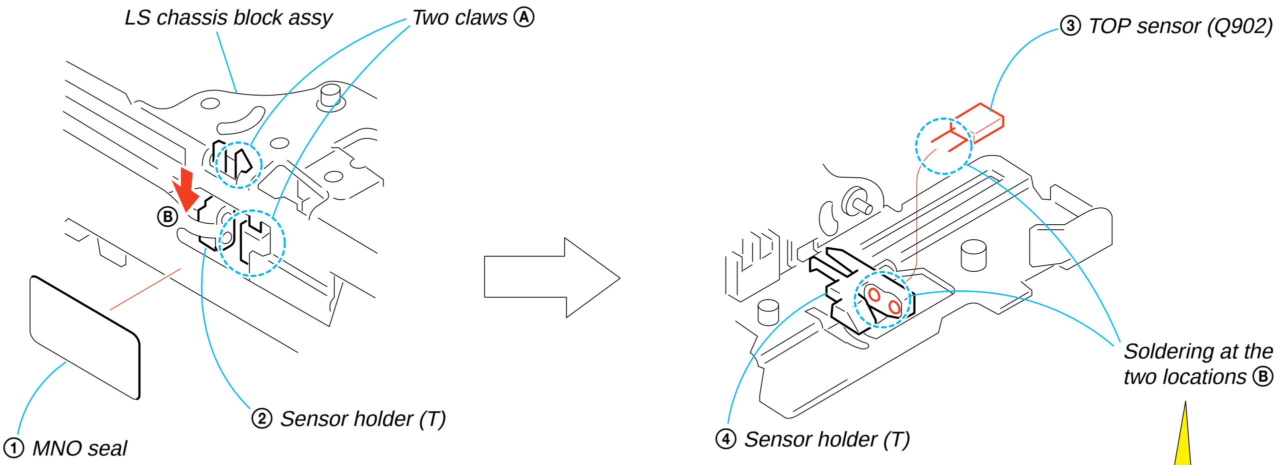
3-21. TOP Sensor (Q902)

1. Removal procedure

1) Peel off the MNO seal ①.
2) Release the two claws of the sensor holder (T) ② at the two locations Ⓐ. Remove it from the LS chassis block assy by sliding it in the direction of the arrow Ⓑ.
3) Remove the soldering at the two locations Ⓑ and remove the TOP sensor (Q902) ③ and the sensor holder (T) ④.

2. Attachment procedure

1) Connect the TOP sensor (Q902) ③ and the sensor holder (T) ④ to the FP-468 flexible board by soldering them at the two locations Ⓑ.
2) Engage the two claws Ⓐ to install the TOP sensor (Q902) ③ and the sensor holder (T) ④ in the LS chassis block assy.
3) Attach the MNO seal ①.


LS chassis block assy
Two claws Ⓐ
Ⓑ
① MNO seal
② Sensor holder (T)
③ TOP sensor (Q902)
Soldering at the two locations Ⓑ
④ Sensor holder (T)

Soldering

Points to be noted

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec

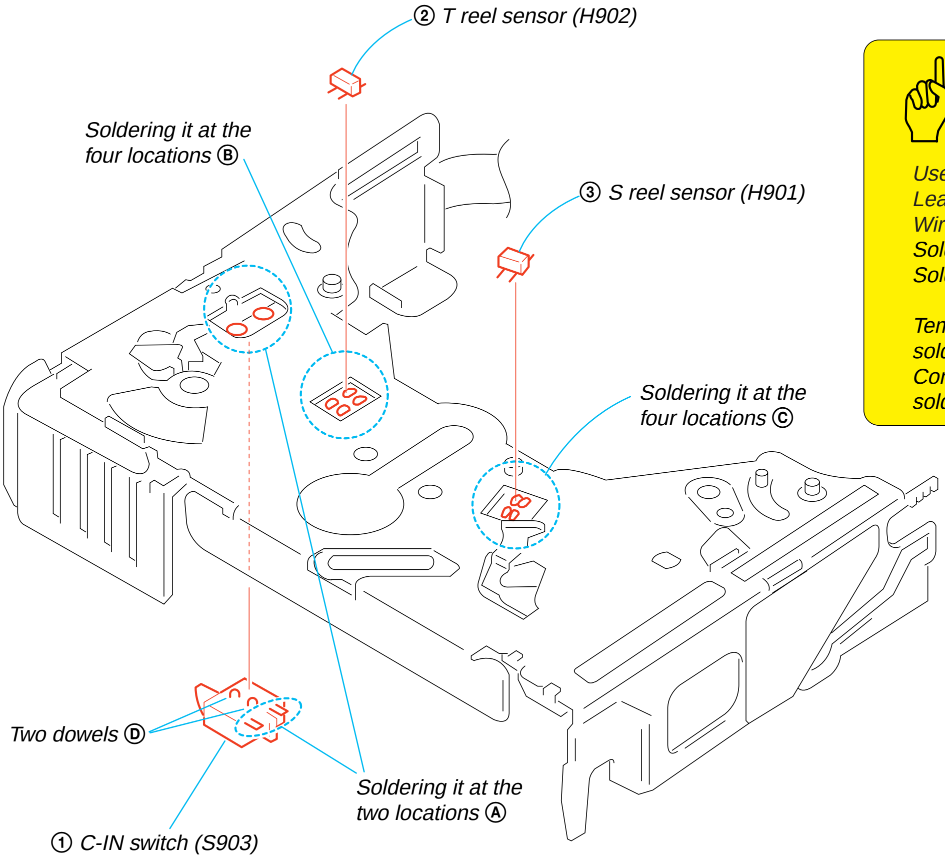
3-22. C-IN Switch (S903), S Reel Sensor (H901) and T Reel Sensor (H902)

1. Removal procedure

1) Remove soldering at the two locations Ⓐ and remove the C-IN switch (S903) ①.
2) Remove soldering at the four locations Ⓑ and remove the T reel sensor (H902) ②.
3) Remove soldering at the four locations Ⓑ and remove the S reel sensor (H901) ③.

2. Attachment procedure

1) Connect the S reel sensor (H901) ③ to the FP-468 flexible board by soldering it at the four locations Ⓒ.
2) Connect the T reel sensor (H902) ② to the FP-468 flexible board by soldering it at the four locations Ⓑ.
3) Align the two dowels Ⓓ and connect the C-IN switch (S903) ① to the FP-468 flexible board by soldering it at the two locations Ⓐ.


② T reel sensor (H902)
Soldering it at the four locations Ⓑ
③ S reel sensor (H901)
Soldering it at the four locations Ⓒ
Two dowels Ⓓ
Soldering it at the two locations Ⓐ
① C-IN switch (S903)

Soldering

Points to be noted

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ± 10 °C
Contacting time of soldering iron tip : within 2 sec

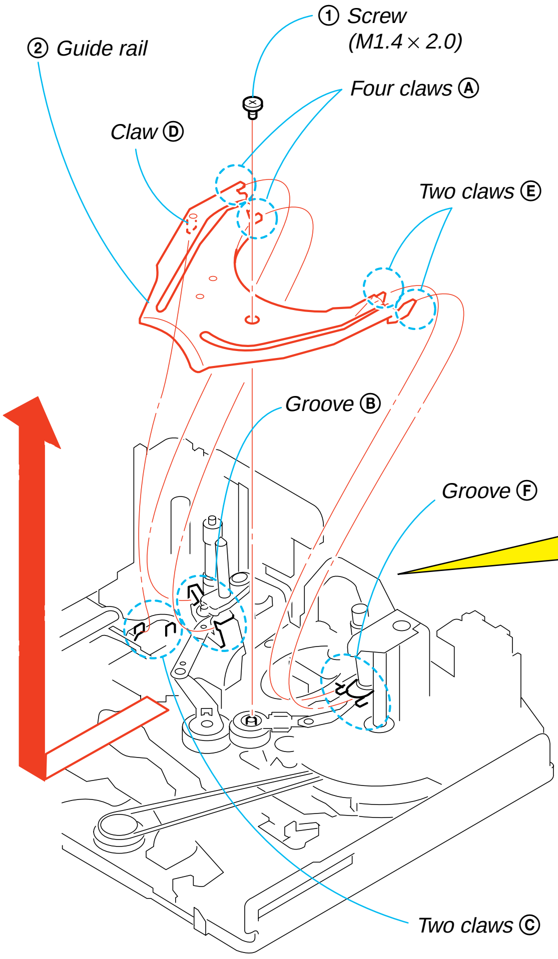
3-23. Guide Rail

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.0) ①.
2) Remove the guide rail ② in the direction of the arrow.

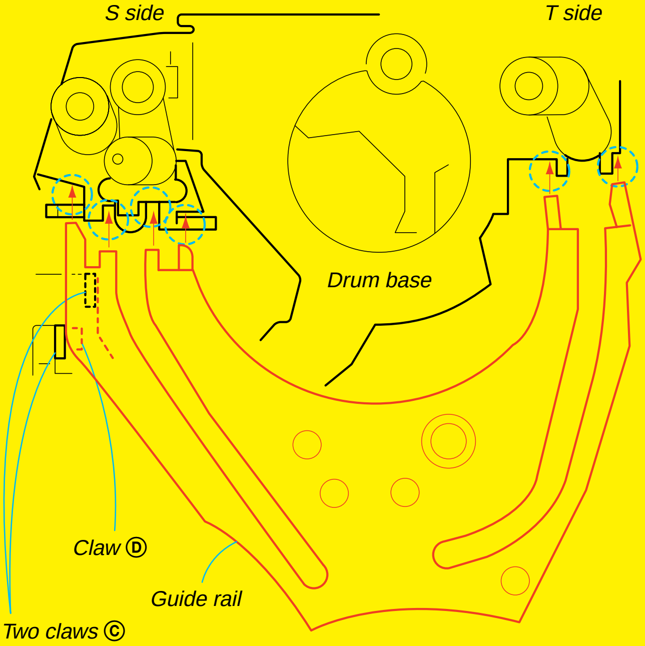
2. Attachment procedure

1) Hold the center of the guide rail ②. While pressing the TG2 cam plate assy, insert the four claws Ⓐ of the guide rail in a slant angle from the top into the drum base's groove Ⓑ. (Insert the top tip of the rail at the same time.) Confirm at this time that the two claws of the TG cam plate assy have entered in the claw Ⓓ of the guide rail.
2) Insert the two claws Ⓔ of the T side guide rail into the groove Ⓕ of the drum base.
3) Tighten the screw (special head screw M1.4 × 2.0) ①.
Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)


② Guide rail
① Screw
(M1.4 × 2.0)
Four claws Ⓐ
Claw Ⓓ
Two claws Ⓔ
Groove Ⓑ
Groove Ⓕ
Two claws Ⓒ

GUIDE RAIL

Key Points in Re-assembling


S side
T side
Drum base
Claw Ⓓ
Guide rail
Two claws Ⓒ

- *Confirm that the two claws Ⓒ of the TG2 cam plate assy have entered in the claw of the guide rail.*
- *Detent of the guide rail has not overridden on the groove of the drum base.*
- *Guide rail must not have any twist or scars.*

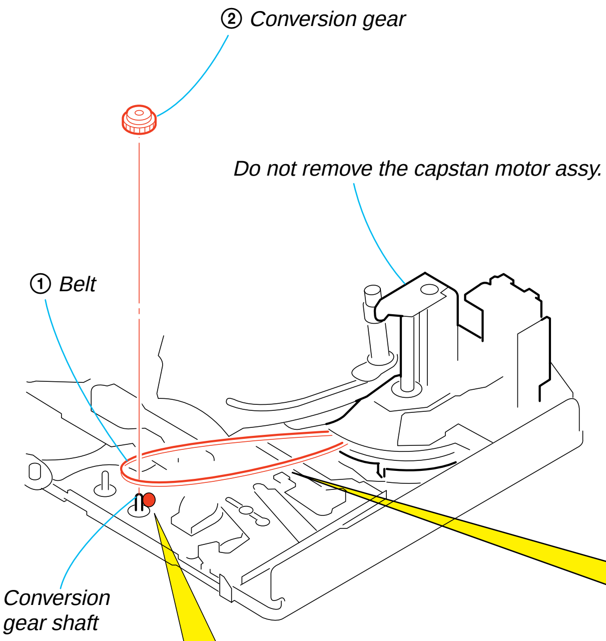
3-24. Conversion Gear

1. Removal procedure

1) Remove the belt ① from the conversion gear.
2) Remove the conversion gear ② from the conversion gear shaft.

2. Attachment procedure

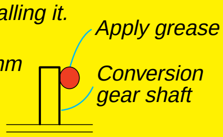
1) Apply grease to the conversion gear shaft.
   Amount of grease: a ball of grease of 1.0 mm diameter
2) Install the conversion gear ② in the conversion gear shaft.
3) Hook the belt ① on the conversion gear in a slant angle and install it by rotating the conversion gear with fingertip.


② Conversion gear
Do not remove the capstan motor assy.
① Belt
Conversion gear shaft

Apply Grease

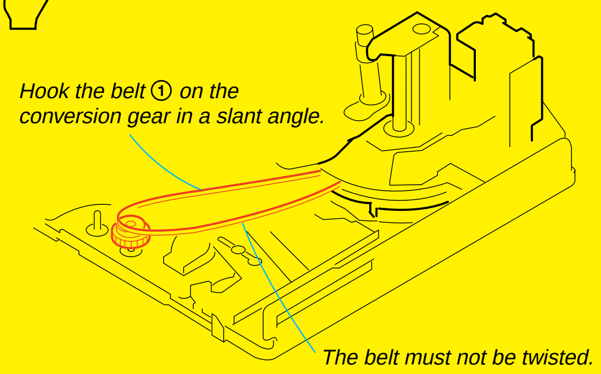
Points to be noted

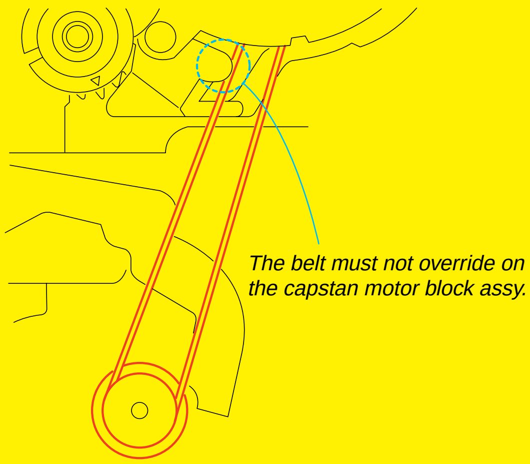
Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter


Apply grease
Conversion gear shaft

BELT

Key Points in Re-assembling


Hook the belt ① on the conversion gear in a slant angle.
The belt must not be twisted.


The belt must not override on the capstan motor block assy.

- *The belt must not override on the capstan motor block assy.*
- *When installing the belt, the belt must not have any twisting, dust, scar or grease must not be splashed on belt.*

3-25. Coaster (S) Block Assy and Coaster (T) Block Assy

1. Removal procedure

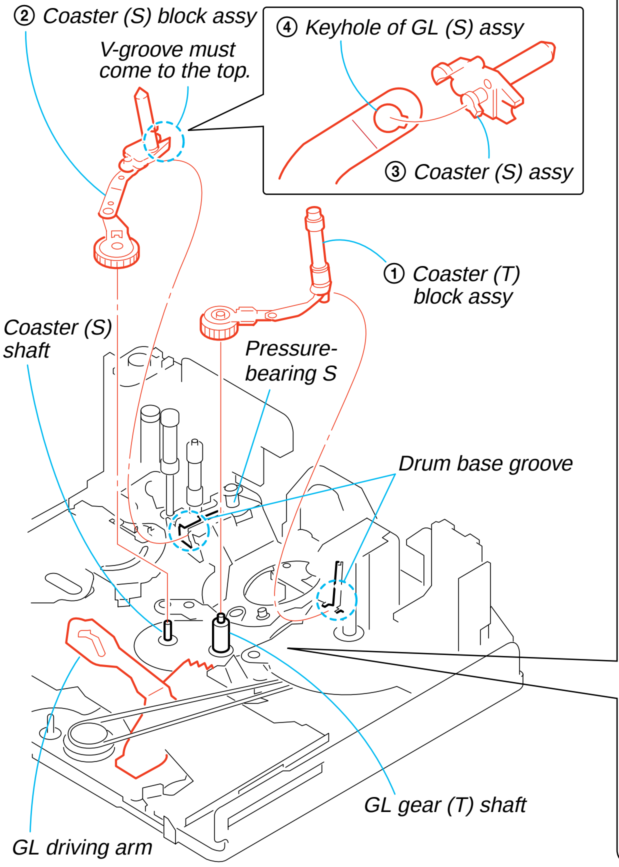
1) Remove the coaster (T) block assy ① from the coaster (T) block shaft. Remove the coaster (T) block assy from the right groove of the drum base.
2) Remove the coaster (S) block assy ② from the coaster (S) block shaft. Remove the coaster (S) block assy from the left groove of the drum base.
3) Remove coaster (S) assy ③ by rotating it through the key hole of GL (S) assy ④.

2. Attachment procedure

1) Install the coaster (S) assy ③ into the key hole of the GL (S) assy ④ by rotating it.
2) Insert the coaster (S) block assy ② into the coaster (S) block shaft. While aligning it with the left groove of the drum base, push it in the way that the V-groove comes to the top until it reaches the pressure-bearing S.
3) Push in the coaster (T) block assy ① along with the right groove of the drum base. Align the phase of the GL gear S, GL gear T and the GL drive arm at the three phasing locations. Then install the coaster (T) block assy ① in the coaster (T) block assy shaft.

Key Points in Re-assembling

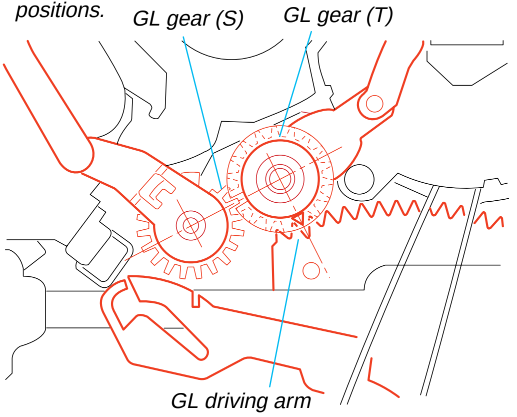
- *When aligning the coaster (S) assy with the left groove of the drum base, the V-groove must come to the top.*
- *TG4 and TG5 must not have any stain and their arms must not be deformed.*

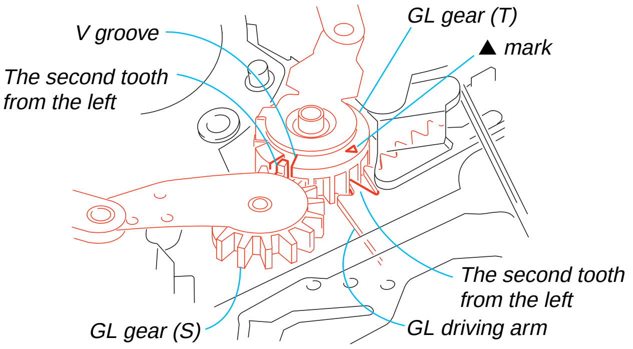

② Coaster (S) block assy
V-groove must come to the top.
④ Keyhole of GL (S) assy
③ Coaster (S) assy
① Coaster (T) block assy
Coaster (S) shaft
Pressure-bearing S
Drum base groove
GL gear (T) shaft
GL driving arm

Phase Adjustment

Key Points in Re-assembling

When re-assembling, adjust the gear phase at the three positions.


GL gear (S)
GL gear (T)
GL driving arm


V groove
GL gear (T)
▲ mark
The second tooth from the left
The second tooth from the left
GL driving arm
GL gear (S)

- *The second tooth from the left of the GL gear (S) and the V-groove of the GL gear (T) must be in phase.*
- *The second tooth from the left of the GL drive arm and the ▲ mark must be in phase.*

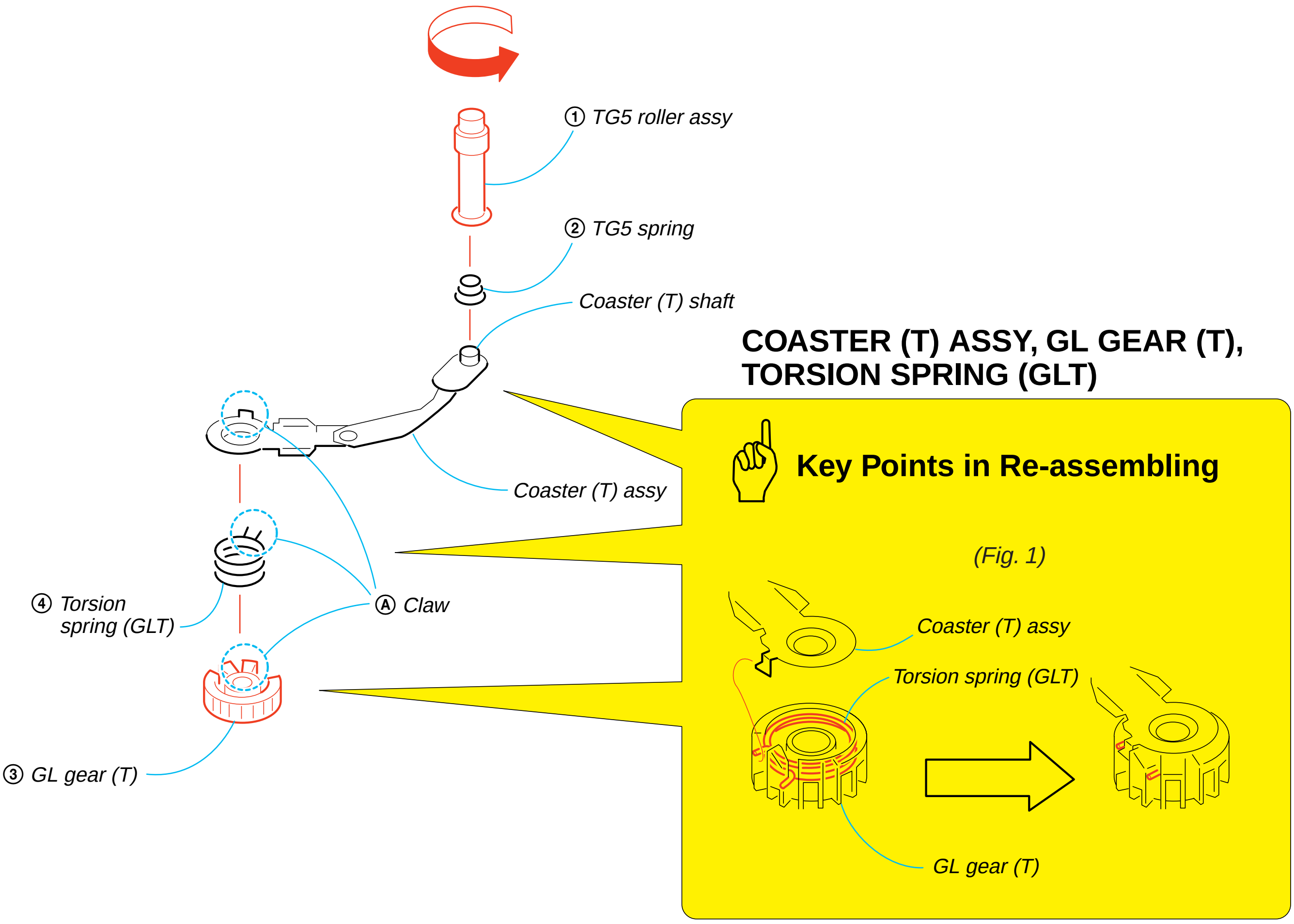
3-26. TG5 Roller Assy and GL Gear (T)

1. Removal procedure

1) Rotate the TG5 roller assy ① in the direction of the arrow and remove the TG5 roller assy ① and the TG5 spring ② from the coaster (T) assy.
2) Release the claw (A) and remove the GL gear (T) ③ and the torsion coil spring (GLT) ④ from the coaster (T) assy.

2. Attachment procedure

1) Install the GL gear (T) ③ and the torsion coil spring (GLT) ④ into the coaster (T) assy.
2) Install the TG5 spring ② into the coaster (T) assy.
3) Install the TG5 roller assy ① into the coaster (T) assy by rotating it in the direction opposite to the arrow.



COASTER (T) ASSY, GL GEAR (T), TORSION SPRING (GLT)

Key Points in Re-assembling

(Fig. 1)

① TG5 roller assy
② TG5 spring
Coaster (T) shaft
Coaster (T) assy
④ Torsion spring (GLT)
Ⓐ Claw
③ GL gear (T)
Coaster (T) assy
Torsion spring (GLT)
GL gear (T)

3-27. TG2 Cam Plate Assy

1. Removal procedure

1) Remove the LS guide roller (S1) ① from the S1 shaft.
2) Remove the LS guide roller (S2) ② from the S2 shaft.
3) Release the claw Ⓐ of the TG2 cam plate assy ③ from the right groove Ⓑ of the mechanical chassis.
4) Remove the TG2 cam plate assy ③ in the direction of the arrow Ⓒ.

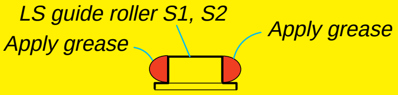
2. Attachment procedure

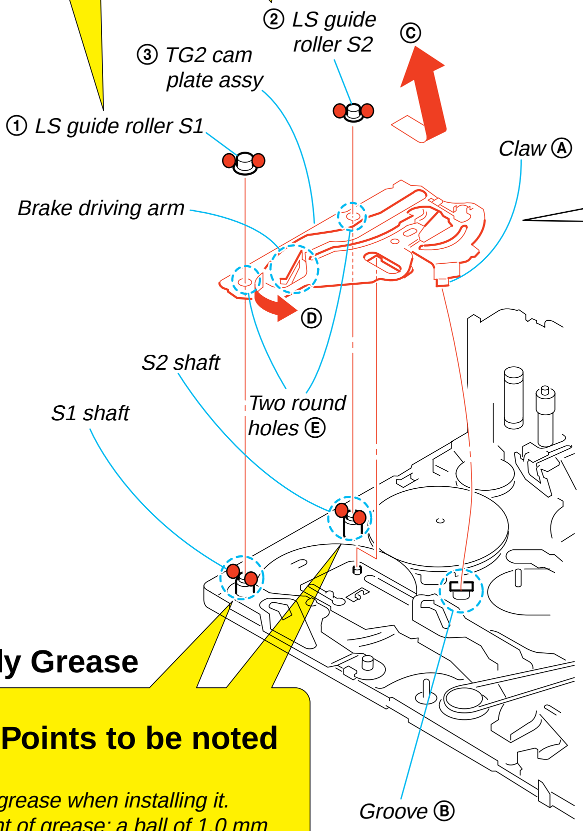
1) Move the brake driving arm of the TG2 cam plate assy ③ in the direction of the arrow Ⓓ.
2) Insert the right claw Ⓐ of the TG2 cam plate assy ③ into the right groove Ⓑ of the mechanical chassis first.
3) Install the two round holes Ⓔ of the TG2 cam plate assy ③ into the S1 shaft and the S2 shaft.
4) Apply grease in the Ⓕ portion of the TG2 cam plate assy.
   Amount of grease: a ball of 1.0 mm diameter of grease
5) Apply grease to both sides of the S1 shaft and the S2 shaft.
   Amount of grease: a ball of 1.0 mm diameter of grease
6) Apply grease to both sides of the LS guide roller S1, S2.
7) Install the LS guide roller S1 ① in the S1 shaft.
8) Install the LS guide roller S2 ② in the S2 shaft.

Apply Grease

Points to be noted

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

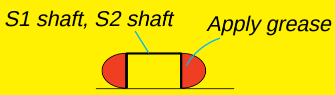

LS guide roller S1, S2
Apply grease
Apply grease


② LS guide roller S2
Ⓒ
③ TG2 cam plate assy
① LS guide roller S1
Claw Ⓐ
Brake driving arm
Ⓓ
S2 shaft
S1 shaft
Two round holes Ⓔ
Groove Ⓑ

Apply Grease

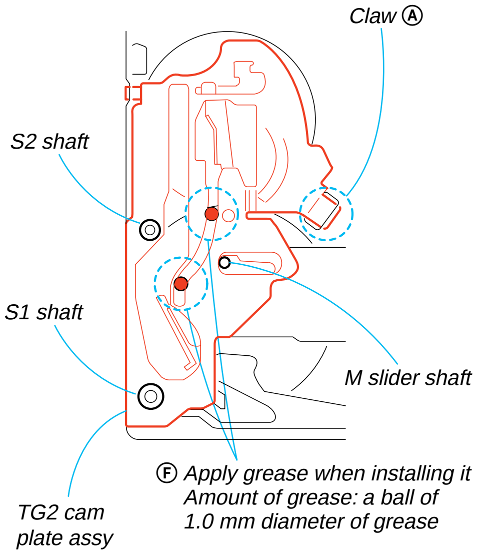
Points to be noted

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease


S1 shaft, S2 shaft
Apply grease

TG2 CAM PLATE ASSY

The Points in Re-assembling


Claw Ⓐ
S2 shaft
S1 shaft
M slider shaft
TG2 cam plate assy

Ⓕ Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease

- *Confirm that the M slider shaft has entered in the groove of the brake driving arm surely.*
- *Confirm that the right and left claws of the TG2 cam plate assy ③ have entered into the mechanical chassis surely.*

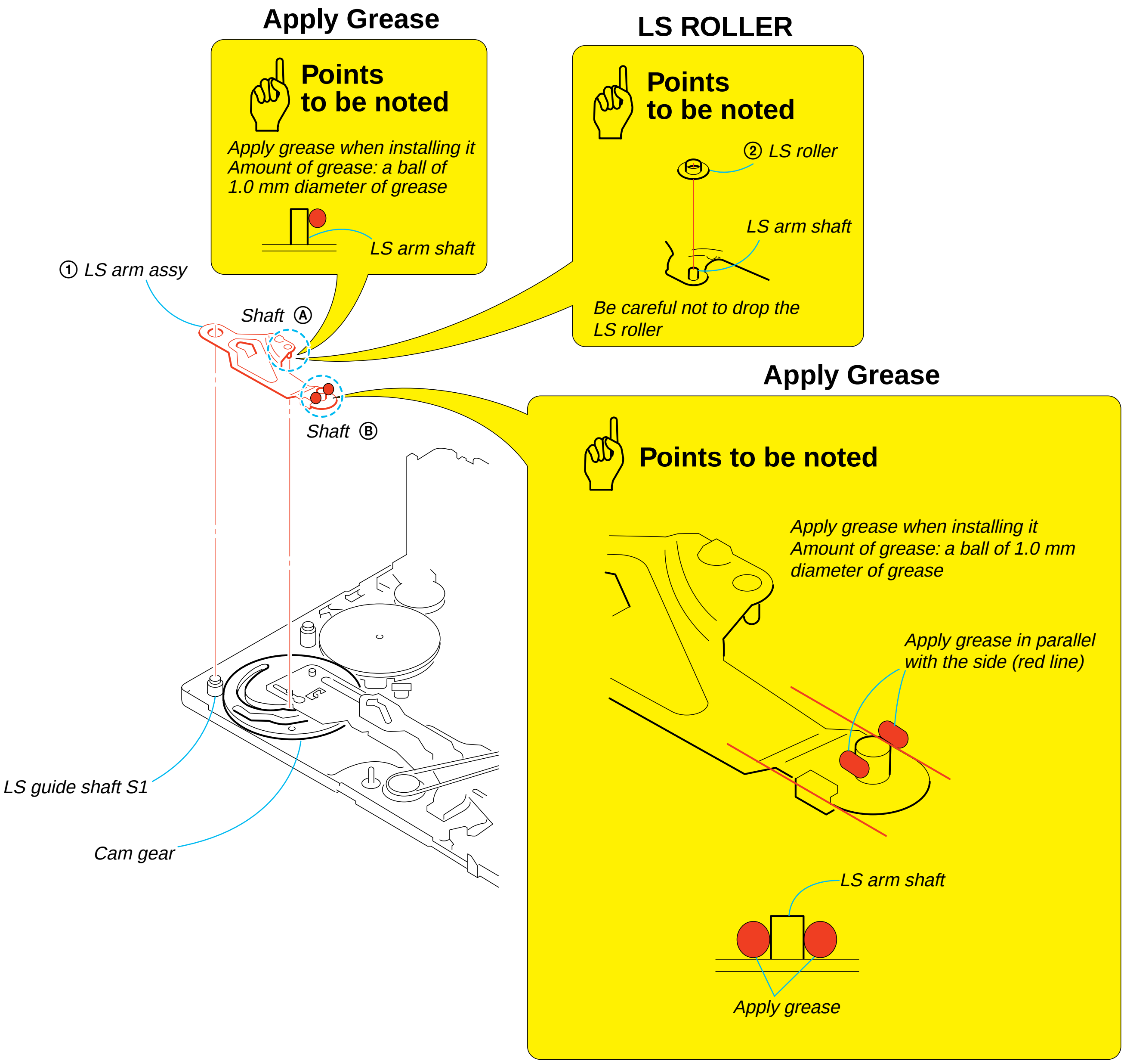
3-28. LS Arm Assy

1. Removal procedure

1) Remove the LS arm assy ① from the LS guide S1 shaft.
2) Turn over the LS arm assy and remove the LS roller ②.

2. Attachment procedure

1) Apply grease to the LS arm shaft Ⓐ (on the side).
2) Install the LS roller ② into the LS arm shaft.
3) Turn over the LS arm assy ① and install it while matching the phase of the LS guide shaft S1 and the cam gear groove.
4) Apply grease to the LS arm shaft Ⓑ (on its side).


Apply Grease
Points
to be noted
LS arm shaft
LS ROLLER
Points
to be noted
② LS roller
LS arm shaft
① LS arm assy
Shaft Ⓐ
Shaft Ⓑ
Apply Grease
Points to be noted
LS arm shaft
Apply grease
LS guide shaft S1
Cam gear

Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease

Be careful not to drop the LS roller

Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease

Apply grease in parallel with the side (red line)

3-29.M Slider Assy (1)

1. Removal procedure

1) Remove an end of the tension spring (pinch) ① from the round hole of the M slider.
2) Remove another end of the tension spring (pinch) ① from the pinch driving arm ②.
3) Rotate the rotary encoder in the direction of the arrow Ⓔ, and align the ▲ mark of ratary encoder with the tooth bottom between second and third teeth Ⓕ. Move by hand in the direction of the arrow Ⓐ until the cam gear shaft and M slider shaft match with the shaft hole of the M slider assy ③.
4) Push in the direction of the arrow Ⓑ until the GL driving arm ④ gets in contact with the conversion gear shaft.

(to be continued to next items 5) through 7) on next page)

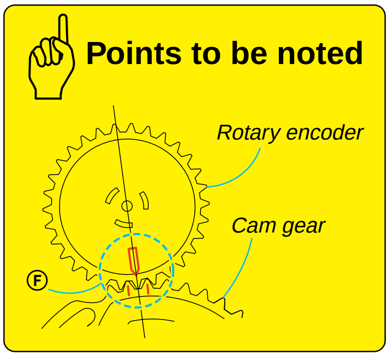
2. Attachment procedure

(continued from the previous items 1) through 5) on next page)

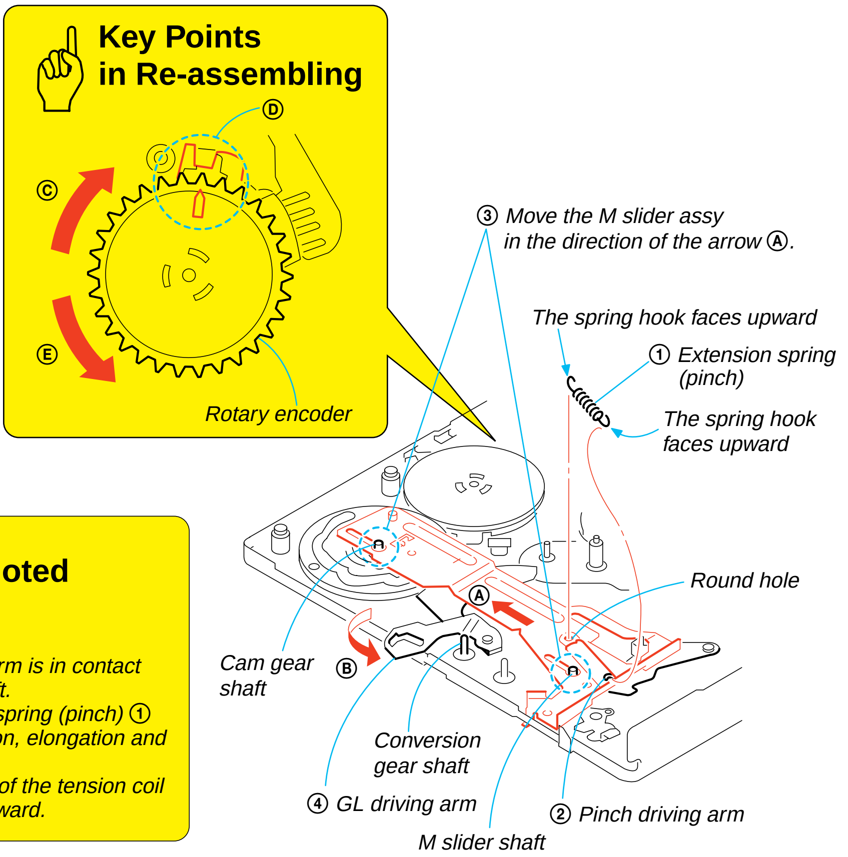
6) Move the conversion gear shaft in the direction opposite tot he arrow mark Ⓑ as far as it can go.
7) Rotate the rotary encoder in the direction of the arrow Ⓒ until the ▲ mark arrives at the position Ⓓ.
8) Install an end of the tension coil spring (pinch) ① on the pinch driving arm ② (in the way that spring hook faces upward).
9) Install another end of the tension coil spring (pinch) ① on the round hole of the M slider (in the way that spring hook faces upward).

ROTARY ENCODER

Points to be noted


Rotary encoder
Cam gear
Ⓕ

Key Points in Re-assembling


Ⓓ
Ⓒ
Ⓔ
Rotary encoder
③ Move the M slider assy in the direction of the arrow Ⓐ.
The spring hook faces upward
① Extension spring (pinch)
The spring hook faces upward
Round hole
Ⓐ
Cam gear shaft
Ⓑ
Conversion gear shaft
④ GL driving arm
② Pinch driving arm
M slider shaft

Points to be noted

- *Confirm that the GL driving arm is in contact with the conversion gear shaft.*
- *Confirm that the tension coil spring (pinch) ① does not have any deformation, elongation and open.*
- *Confirm that the spring hook of the tension coil spring (pinch) ① is facing upward.*

3-30. M Slider Assy (2)

1. Removal procedure

(continued from the previous items 1) through 5) on previous page)

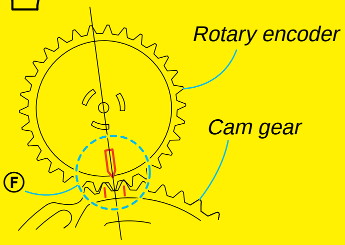
5) Remove the cam gear shaft and the M slider shaft from the two shaft holes Ⓐ of the M slider assy ①.
6) Remove the top tip Ⓑ of the M slider assy ① from the notch of the mechanical chassis in the direction of the arrow.
7) Remove the M slider assy ①.

2. Attachment procedure

1) Apply grease to the cam gear shaft and the M slider shaft (neck groove of the shaft where the M slider slides).
   Amount of grease: a ball of 1.0 mm diameter of grease
2) Align the hole of the pinch driving arm and the hole of the mechanical chassis.
3) Insert the top tip Ⓑ of the M slider assy ① into the notch of the mechanism chassis, and at the same time install the M slider assy ① into the GL driving arm.
4) Align the ▲ mark of rotary encoder with the tooth bottom between second and third teeth Ⓕ.
5) Install the cam gear shaft and the M slider shaft into the tow shaft holes Ⓐ of the M slider assy.

(to be continued to next items 6) through 9) on previous page)

Points to be noted


Rotary encoder
Cam gear
Ⓕ

M SLIDER ASSY

Key Points in Re-assembling

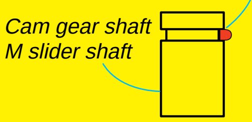
- *When installing the M slider assy ①, confirm that the GL driving arm is in contact with the conversion gear shaft.*
- *Confirm that you have not forgotten to insert the top tip Ⓑ of the M slider assy ① into the notch of the mechanical chassis. The M slider assy ① should not have any deformation.*

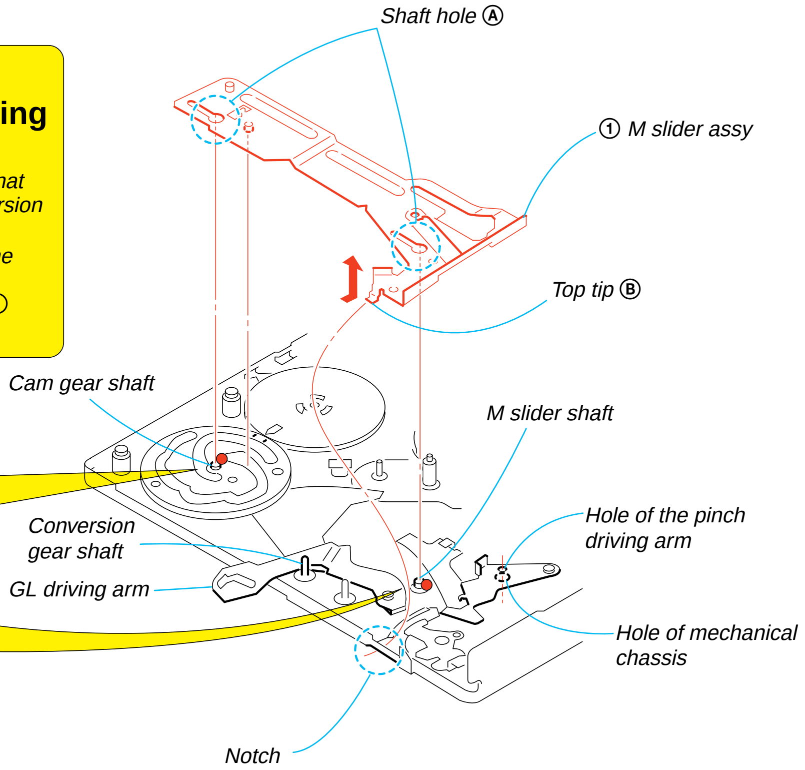
Apply Grease

Points to be noted

Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease

Neck groove of the shaft where the M slider slides


Cam gear shaft
M slider shaft


Shaft hole Ⓐ
① M slider assy
Top tip Ⓑ
Cam gear shaft
M slider shaft
Conversion gear shaft
GL driving arm
Hole of the pinch driving arm
Hole of mechanical chassis
Notch

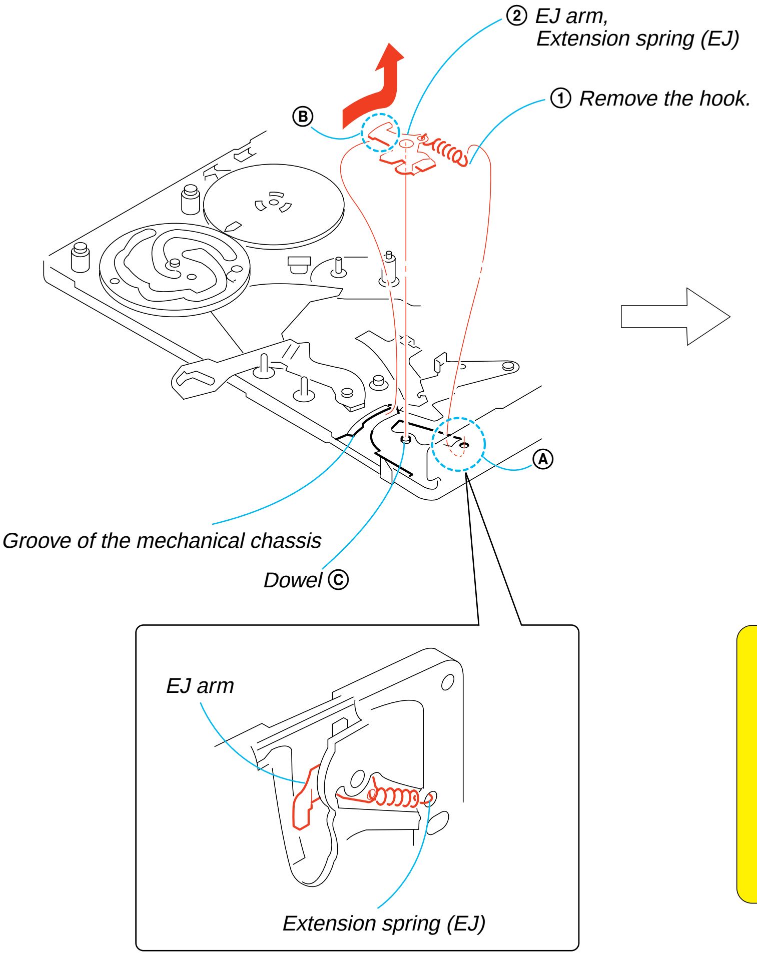
3-31. EJ Arm

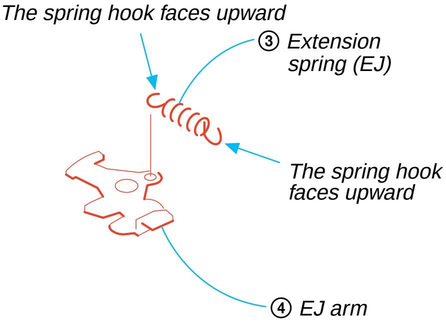
1. Removal procedure

1) Remove the hook ① of the tension coil spring (EJ arm) ③ that is hooked on the round hole Ⓐ.
2) Remove the EJ arm and the tension coil spring (EJ arm) ② all together in the direction of the arrow.
3) Remove the tension coil spring (EJ arm) ③ from the EJ arm ④.

2. Attachment procedure

1) Install the tension coil spring (EJ arm) ③ into the round hole of the EJ arm ④ with the hook facing upward.
2) Insert the top tip (bent) portion Ⓑ of the EJ arm ④ into the groove of the mechanical chassis. Insert the dowel Ⓒ into the round hole of the EJ arm.
3) Insert he tension coil spring ① into the round hole Ⓐ of the mechanical chassis with the hook facing upward.


② EJ arm,
Extension spring (EJ)
① Remove the hook.
Ⓑ
Ⓐ
Groove of the mechanical chassis
Dowel Ⓒ
EJ arm
Extension spring (EJ)


The spring hook faces upward
③ Extension spring (EJ)
The spring hook faces upward
④ EJ arm

Points to be noted

- *When installing the EJ arm, confirm the front side and rear side so that the correct side is selected.*
- *Extension spring (EJ) must not have elongation and opening of hook.*

3-32. Cam Gear and GL Driving

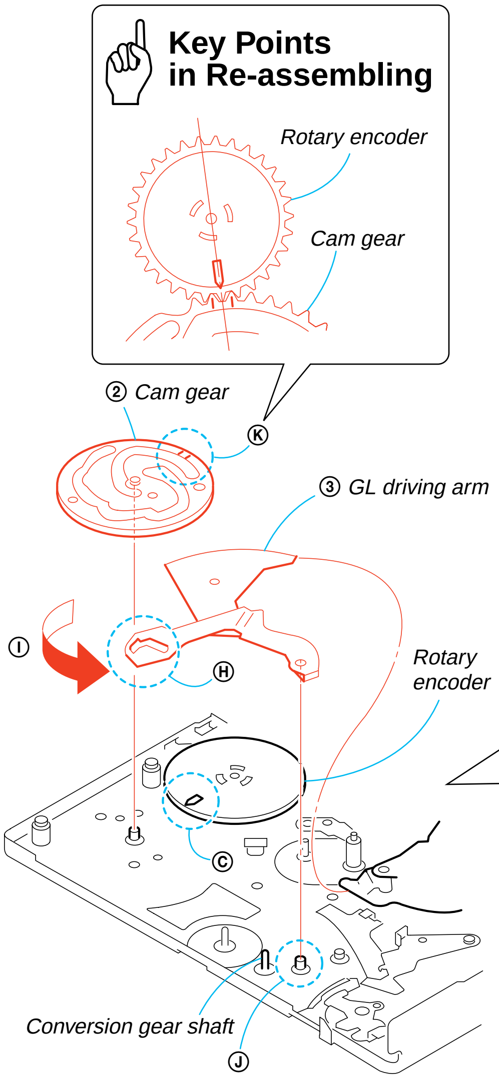
1. Removal procedure

1) Rotate the GL driving arm Ⓗ block assy in the direction of the arrow Ⓘ until it contacts with the conversion gear shaft.
2) Remove the cam gear ②.
3) Remove the GL driving arm ③.

2. Attachment procedure

1) Insert the GL driving arm ③ into the shaft Ⓙ of the mechanical chassis and rotate the GL driving arm Ⓗ block assy in the direction of the arrow Ⓘ until it contacts with the conversion gear shaft.
2) Confirm the front side and rear side of the cam gear ② so that the correct side is selected. Install the cam gear ② while matching phase of the ▲ mark Ⓒ with the second tooth valley Ⓚ and the third tooth valley Ⓚ of the cam gear.
3) Apply grease to the specified locations Ⓐ to Ⓖ of the cam gear.

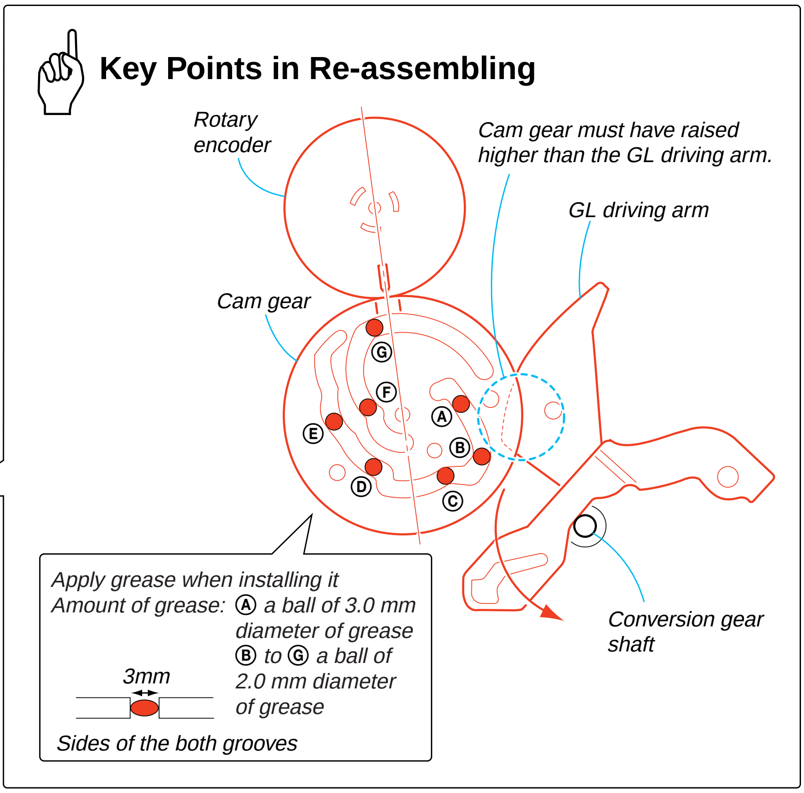
Matching Phase


Key Points
in Re-assembling
Rotary encoder
Cam gear
② Cam gear
Ⓚ
③ GL driving arm
Ⓘ
Ⓗ
Rotary
encoder
Ⓒ
Conversion gear shaft
Ⓙ

Points to be noted

- *Confirm that the phase of the cam gear and that of the rotary encoder are matched and in phase.*
- *Confirm that the cam gear overrides on the GL driving arm.*
- *Confirm that the GL driving arm is contact with the conversion shaft.*
- *Do not apply grease to any locations other than the specified location. Apply grease of the specified amount.*

Notes When Applying Grease and During Installation


Key Points in Re-assembling
Rotary
encoder
Cam gear must have raised
higher than the GL driving arm.
GL driving arm
Cam gear
Ⓖ
Ⓕ
Ⓐ
Ⓔ
Ⓑ
Ⓓ
Ⓒ
Conversion gear
shaft
3mm

Apply grease when installing it
Amount of grease: Ⓐ *a ball of 3.0 mm diameter of grease*
Ⓑ *to* Ⓖ *a ball of 2.0 mm diameter of grease*
Sides of the both grooves

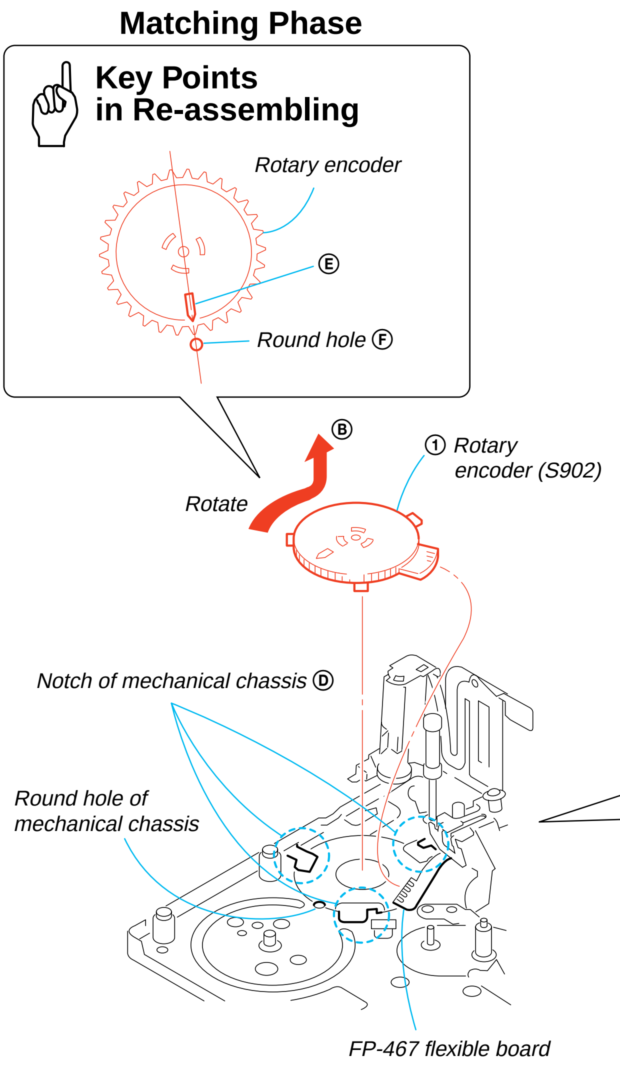
3-33. Rotary Encoder (S902)

1. Removal procedure

1) Remove the three claws Ⓐ of the rotary encoder (S902) ① from the three notches of the mechanical chassis.
2) Rotate the rotary encoder (S902) ① in the direction of the arrow Ⓑ and remove.
3) Remove soldering (at the four locations) Ⓒ to which the rotary encoder (S902) is attached.

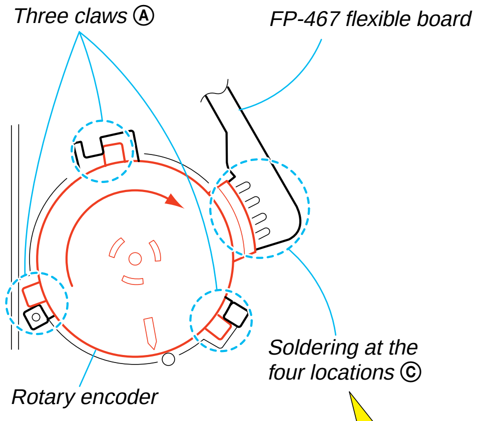
2. Attachment procedure

1) Make soldering (at the four locations) Ⓒ so that the rotary encoder (S902) ① is connected to the FP-467 flexible board.
2) Place the rotary encoder (S902) ① on top of the notch Ⓓ of the mechanical chassis. Lock the three claws Ⓐ of the rotary encoder (S902) ① into the notches Ⓓ of the mechanical chassis.
3) Match the phase of the ▲ mark Ⓔ of the rotary encoder (S902) ① with the phase of the round hole Ⓕ of the mechanical chassis.


Matching Phase
Key Points
in Re-assembling
Rotary encoder
Ⓔ
Round hole Ⓕ
Ⓑ
① Rotary encoder (S902)
Rotate
Notch of mechanical chassis Ⓓ
Round hole of mechanical chassis
FP-467 flexible board

Points to be noted

- *Be careful not to break flexible board when removing and installing it.*
- *During installation, the rotary encoder must have already been locked in the mechanical chasis.*


Three claws Ⓐ
FP-467 flexible board
Soldering at the four locations Ⓒ
Rotary encoder

Soldering

Points to be noted

Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Temperature of the soldering iron tip: 350 ±10 °C
Contacting time of soldering iron tip: within 2 sec.

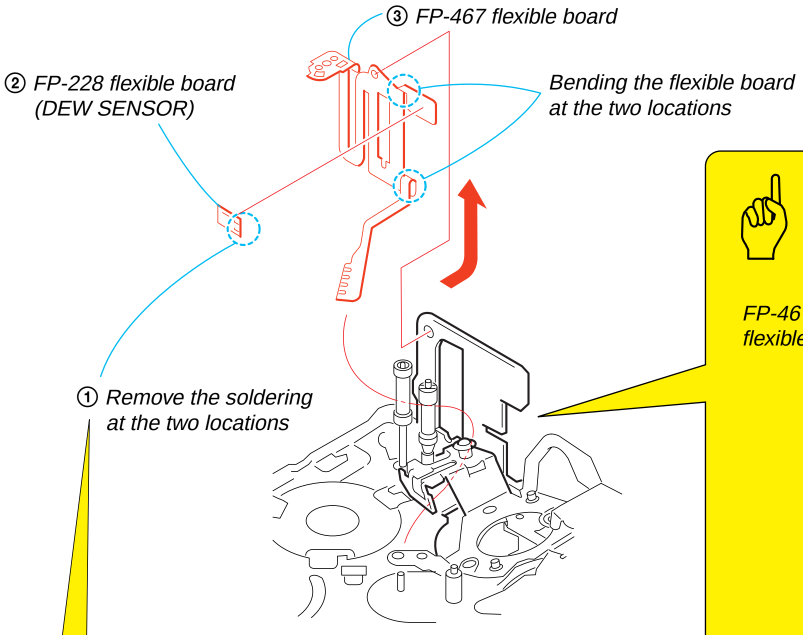
3-34. FP-228 Flexible Board (DEW SENSOR) and FP-467 Flexible Board

1. Removal procedure

1) Remove the soldering at the two locations ① and remove the FP-228 flexible board (DEW SENSOR) ②.
2) Remove the FP-467 flexible board ③ from the mechanical chassis in the direction of the arrow.

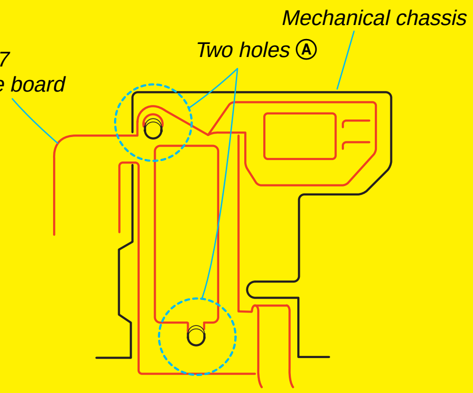
2. Attachment procedure

1) Match the phase of the two holes Ⓐ of the FP-467 flexible board ③ with the holes of the mechanical chassis, and attach them each other.
2) Attach the FP-228 flexible board (DEW SENSOR) ② to the FP-467 flexible board ③.
3) Connect the terminals at the two locations ① by soldering.


③ FP-467 flexible board
② FP-228 flexible board
(DEW SENSOR)
Bending the flexible board
at the two locations
① Remove the soldering
at the two locations

FP-467 FLEXIBLE BOARD

Key Points in Re-assembling


Mechanical chassis
Two holes Ⓐ
FP-467
flexible board

Soldering

Points to be noted

Lead-free solder

Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.

- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts. There must not be solder ball.*
- *Be careful not to contact the soldering iron tip too long time.*

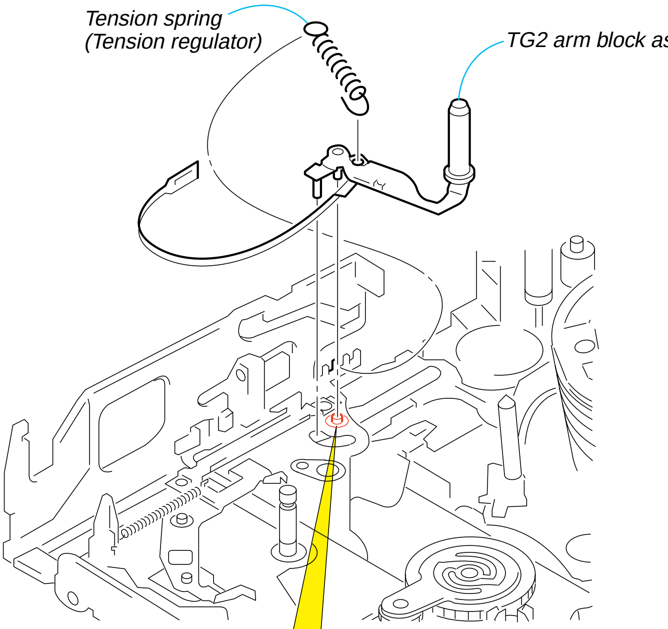
Points to be noted

- *Be careful not to break the flexible board to have open circuit when installing and removing it.*
- *Be careful that flexible board must not override on anything.*
- *Be careful that the two bending portions of the FP-467 flexible board must not be bent excessively that results in open circuit and breakdown of flexible board.*
- *Do not rub the DEW sensor with any rubbing bars.*

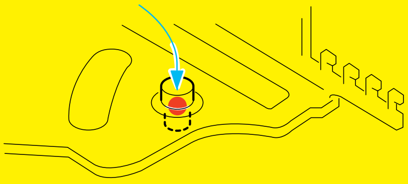
HELP

Application of grease, soldering method and precautions, and phase matching adjustment are compiled and below.

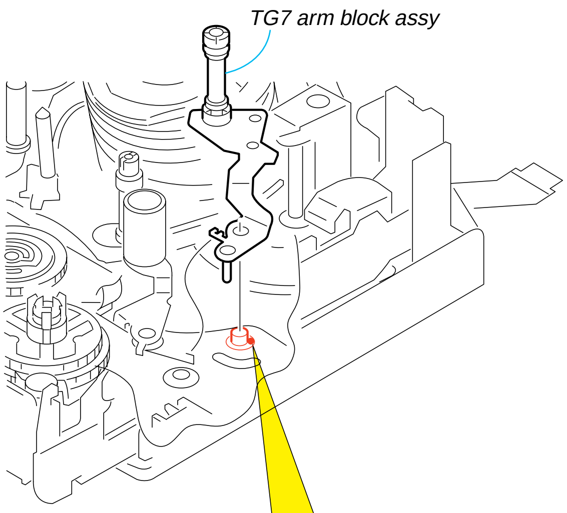
Apply grease (1)


Tension spring
(Tension regulator)
TG2 arm block assy

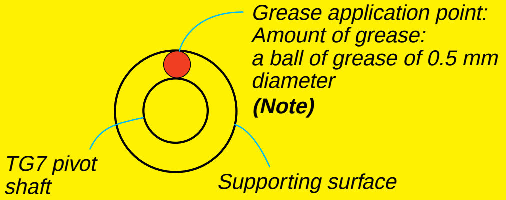
During installation, apply grease in the TG2 arm pivot shaft hole.
Amount of grease: a ball of grease of 1.0 mm diameter
(Note)

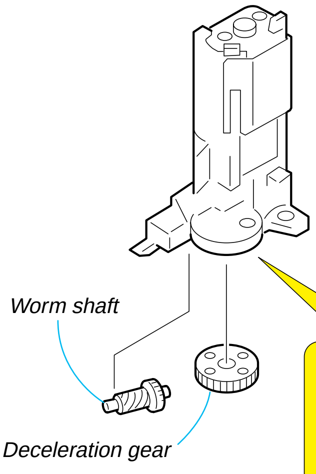


Note: Re-application of grease to the point which is greased already before is not necessary.

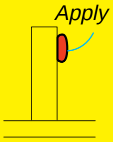

TG7 arm block assy

Apply grease on the supporting surface of the TG7 pivot shaft.

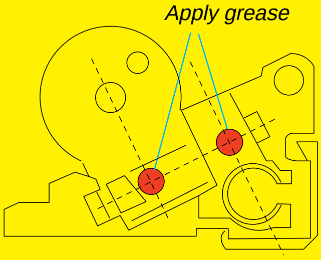

Grease application point:
Amount of grease:
a ball of grease of 0.5 mm diameter
(Note)
TG7 pivot shaft
Supporting surface


Worm shaft
Deceleration gear

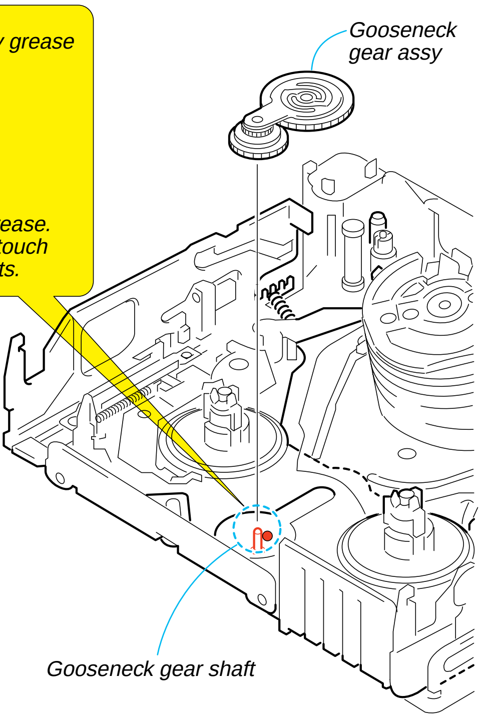
Gooseneck gear shaft
Amount of grease: a ball of grease of 1.0 mm diameter
(Note)


Apply grease

- Do not apply grease to the wrong position.
- Do not forget to apply grease.
- Do not make mistake about amount of grease.
- When applying grease, do not splash or touch grease to any other parts and components.

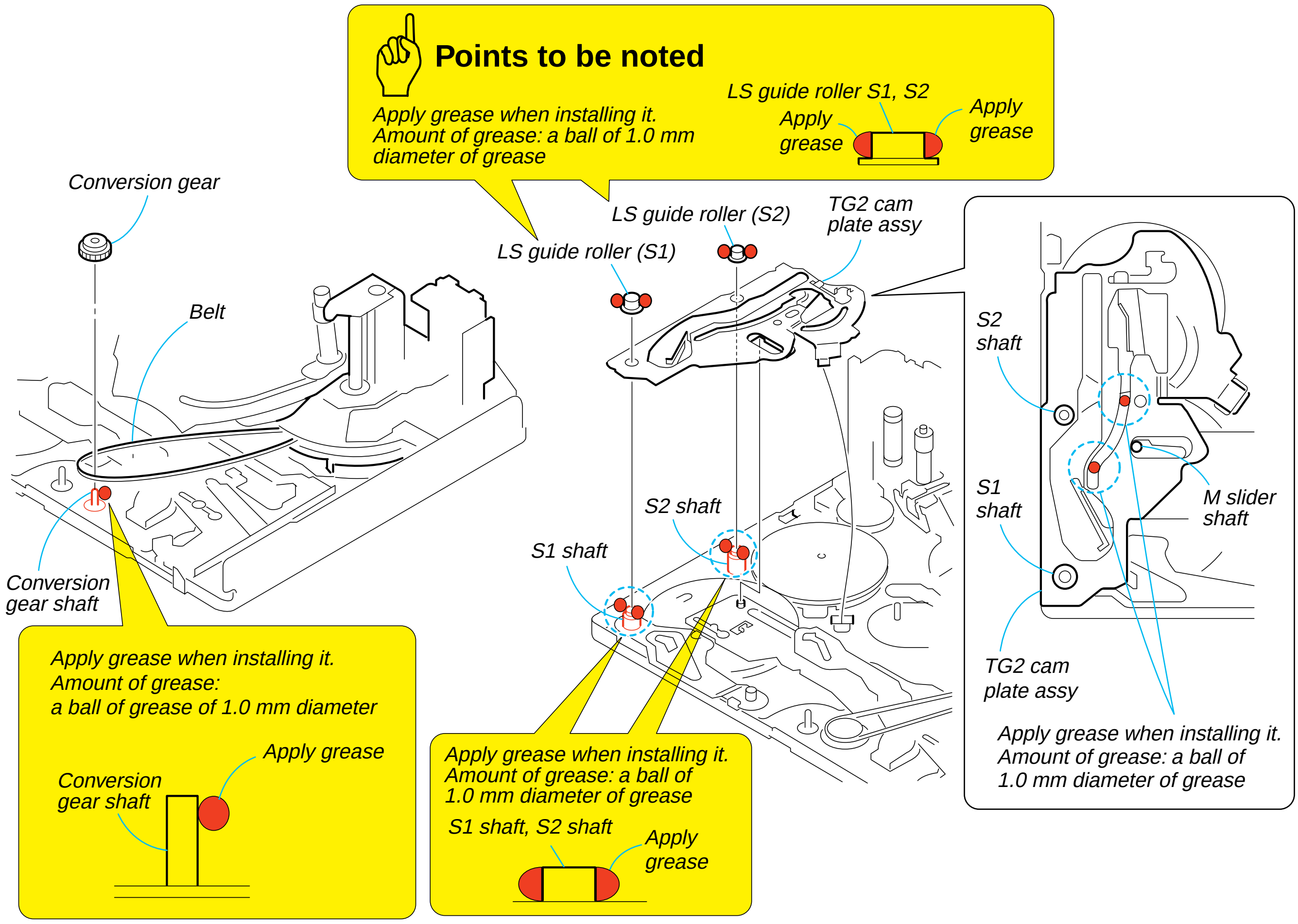

Apply grease

Amount of grease to be applied
: 2.0 mm dia (at 2 locations)


Gooseneck gear assy
Gooseneck gear shaft

Apply grease (2)

Apply Grease



Points to be noted

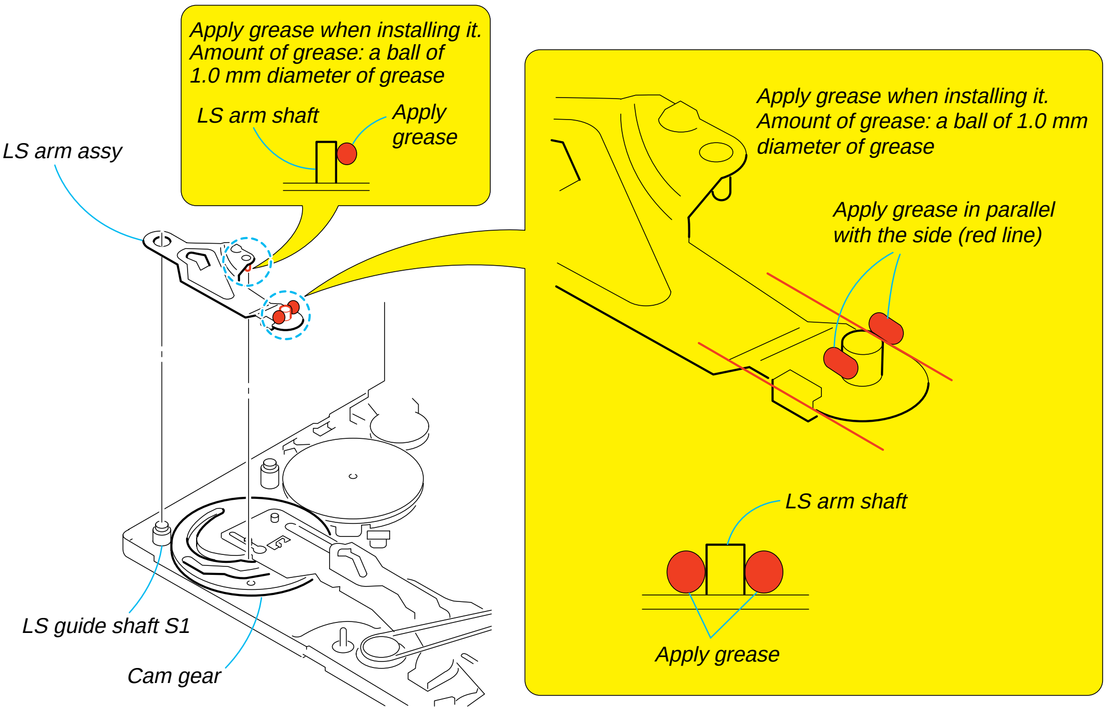
Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

LS guide roller S1, S2
Apply grease
Apply grease
Conversion gear
Belt
Conversion gear shaft
LS guide roller (S1)
LS guide roller (S2)
TG2 cam plate assy
S2 shaft
S1 shaft
Apply grease
Conversion gear shaft
S1 shaft, S2 shaft
Apply grease
S2 shaft
S1 shaft
M slider shaft
TG2 cam plate assy



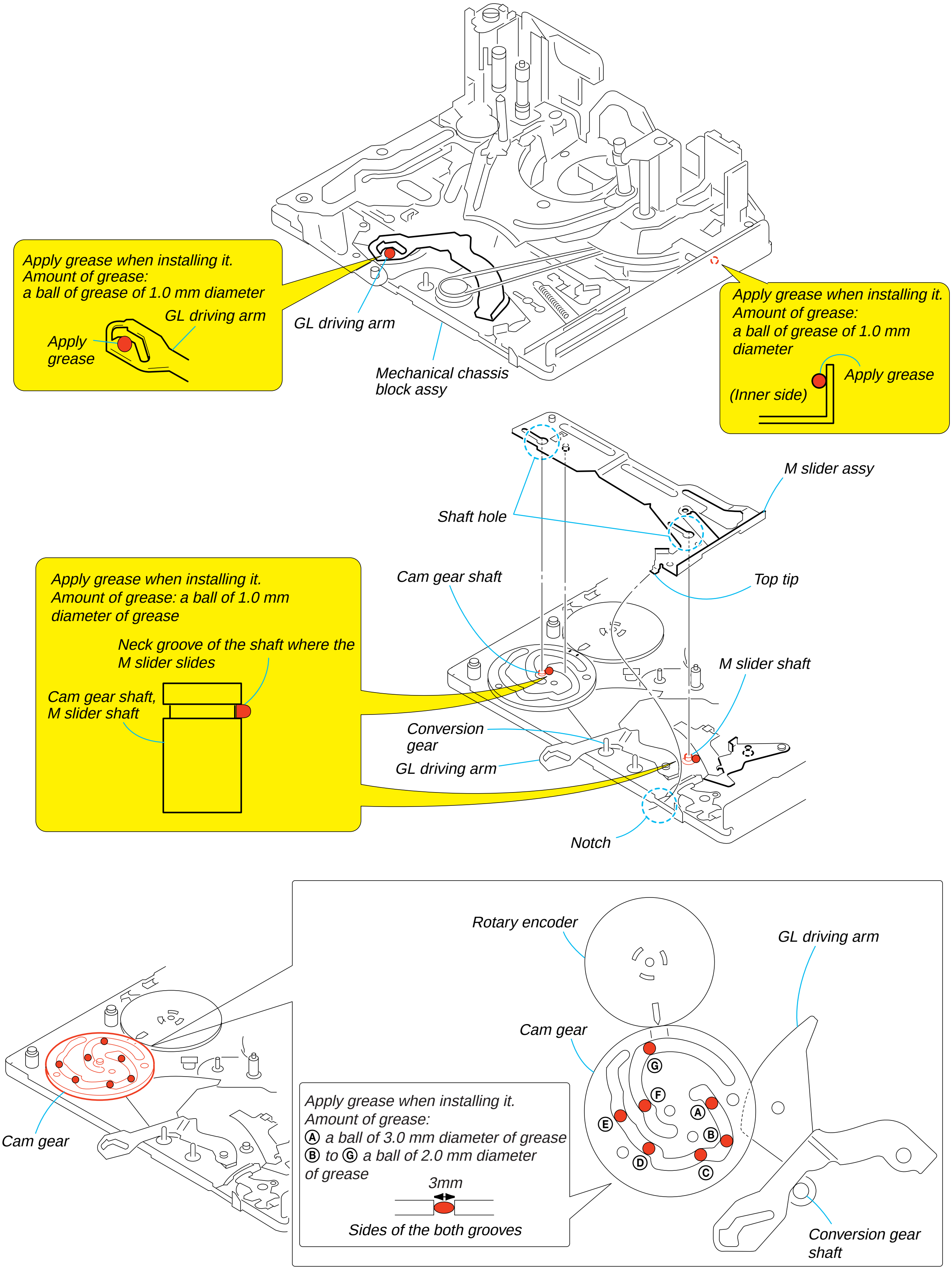
Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

Apply grease in parallel with the side (red line)

LS arm shaft
Apply grease
LS arm assy
LS guide shaft S1
Cam gear
LS arm shaft
Apply grease

Apply grease (3)



Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter

Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

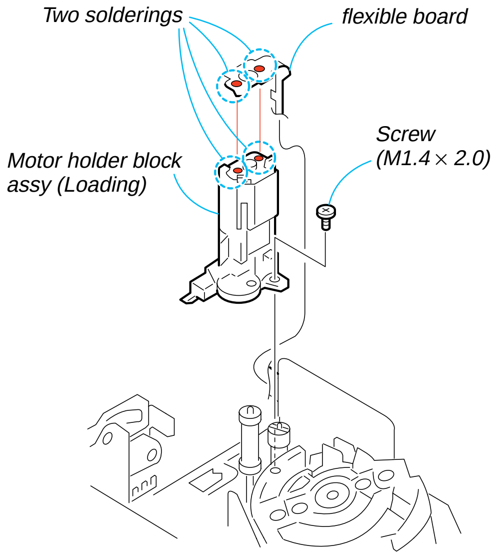
Apply grease when installing it.
Amount of grease:
Ⓐ a ball of 3.0 mm diameter of grease
Ⓑ to Ⓖ a ball of 2.0 mm diameter of grease

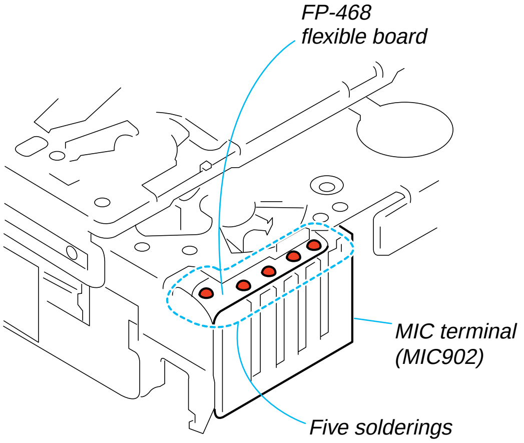
GL driving arm
Apply grease
GL driving arm
Mechanical chassis block assy
Apply grease
(Inner side)
M slider assy
Shaft hole
Top tip
Cam gear shaft
M slider shaft
Neck groove of the shaft where the M slider slides
Cam gear shaft, M slider shaft
Conversion gear
GL driving arm
Notch
Rotary encoder
GL driving arm
Cam gear
Cam gear
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Ⓖ
3mm
Sides of the both grooves
Conversion gear shaft

Soldering (1)

Lead-free solder
Wire type : ∅0.6
Temperature of the soldering iron tip : 320 °C
Contacting time of soldering iron tip : within 2 sec.

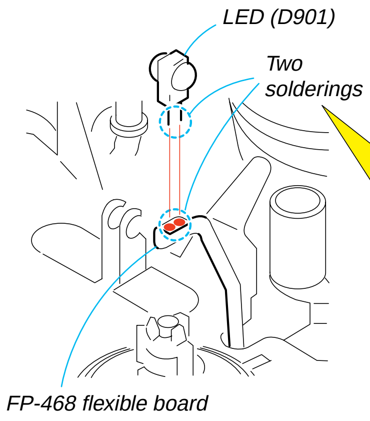
- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.*
- *Be careful not to melt the detent of the holder.*
- *Be careful not to melt the END cover.*
- *Be careful not to break the terminals due to attaching the soldering iron too long time.*


Two solderings
FP-467 flexible board
Screw (M1.4 × 2.0)
Motor holder block assy (Loading)

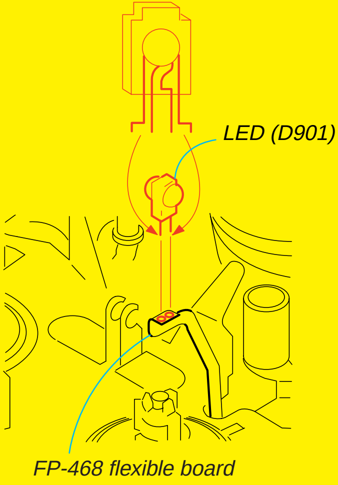

FP-468 flexible board
MIC terminal (MIC902)
Five solderings

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

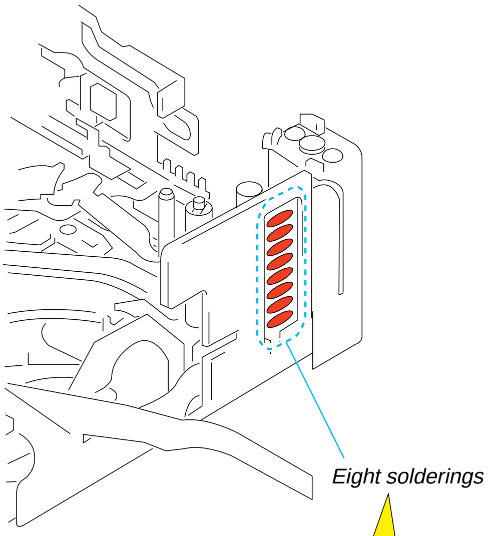
Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec


LED (D901)
Two solderings
FP-468 flexible board

Direction of the terminal is specified.


LED (D901)
FP-468 flexible board

Rubber finger tip protection cover must be used.
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Soldering iron tip: T1-1BC
Temperature of the soldering iron tip: 300 ±10 °C
Contacting time of soldering iron tip: within 2 sec.


Eight solderings

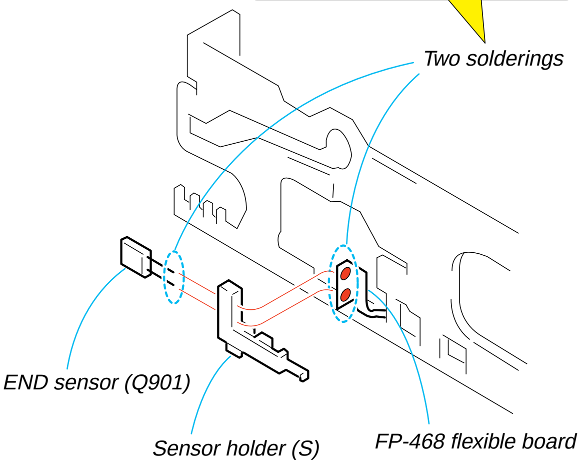
Lead-free solder
Wire type: diameter 0.6 ∅
Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.

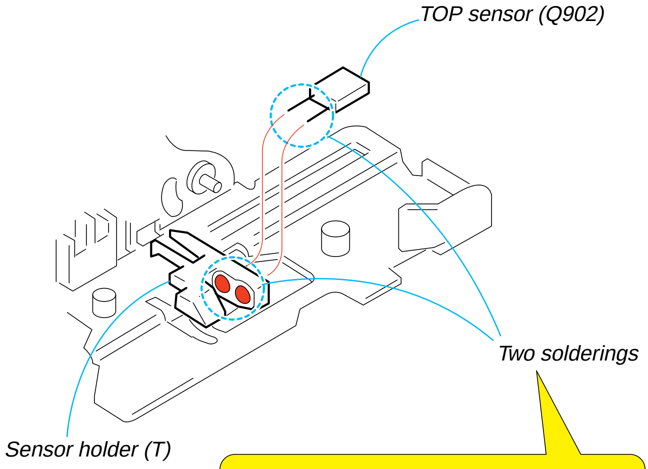
- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.*
- *Be careful not to crash the grip jog to the TG1 guide.*

Soldering (2)

Use the rubber finger tip cover Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec


Two solderings
END sensor (Q901)
Sensor holder (S)
FP-468 flexible board

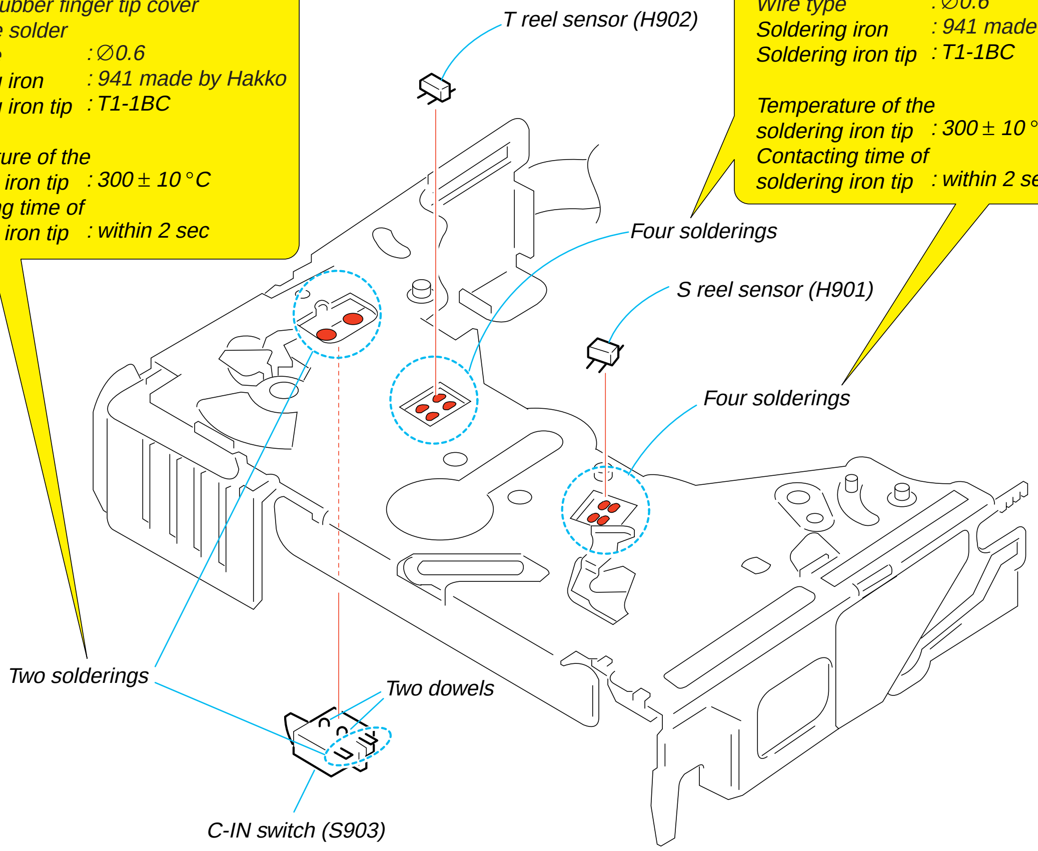

TOP sensor (Q902)
Two solderings
Sensor holder (T)

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

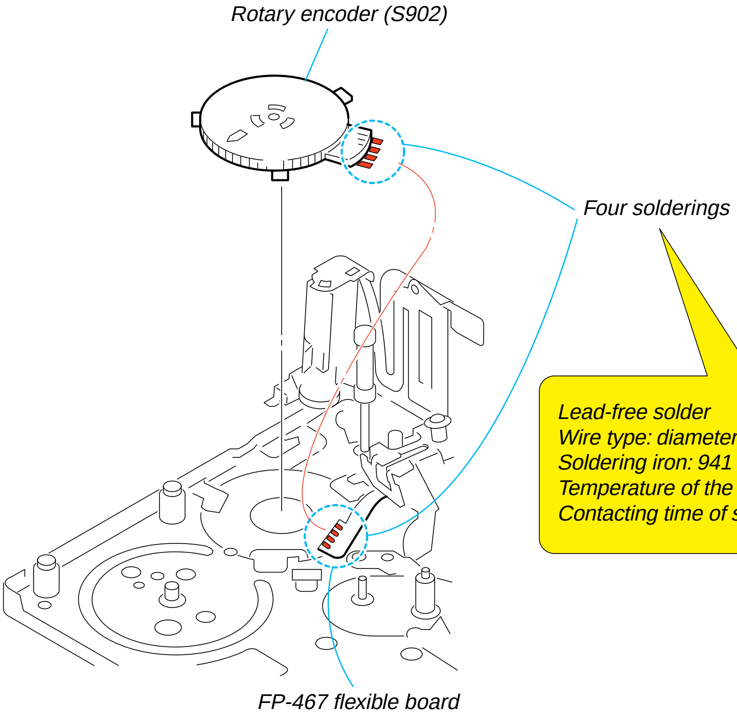
Temperature of the soldering iron tip : 300 ± 10 °C
Contacting time of soldering iron tip : within 2 sec


T reel sensor (H902)
Four solderings
S reel sensor (H901)
Four solderings
Two solderings
Two dowels
C-IN switch (S903)

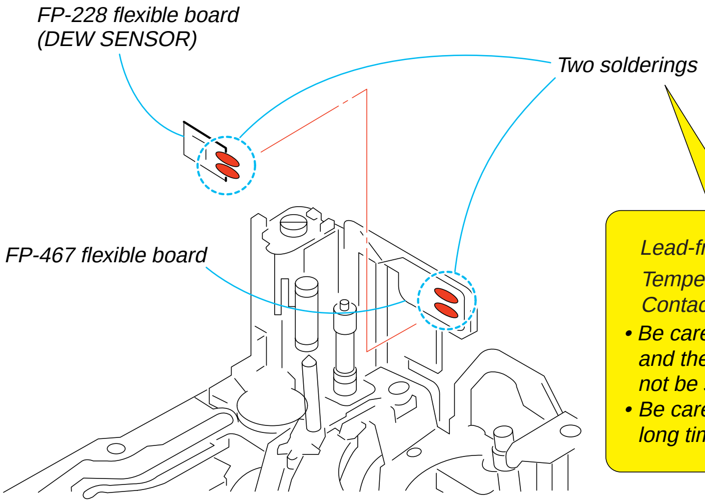
Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ± 10 °C
Contacting time of soldering iron tip : within 2 sec

Soldering (3)


Rotary encoder (S902)
Four solderings
FP-467 flexible board

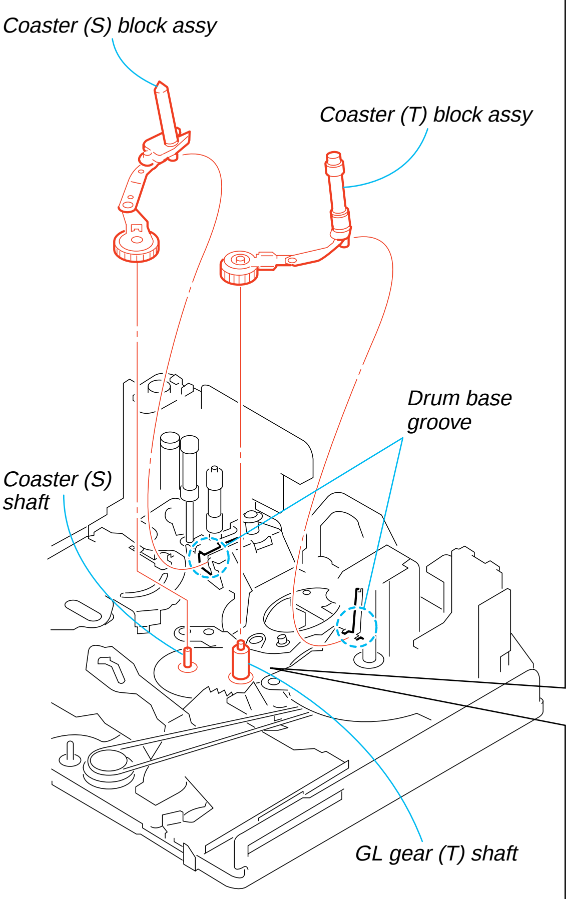
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Temperature of the soldering iron tip: 350 ±10 °C
Contacting time of soldering iron tip: within 2 sec.


FP-228 flexible board
(DEW SENSOR)
Two solderings
FP-467 flexible board

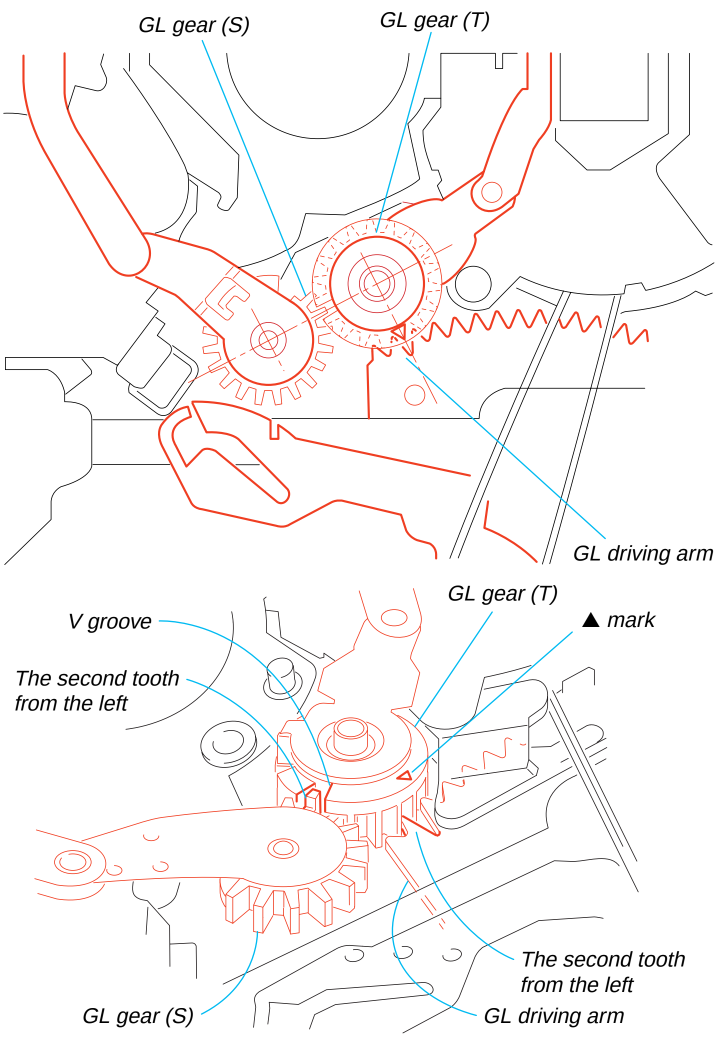
Lead-free solder
Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.

- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts. There must not be solder ball.*
- *Be careful not to contact the soldering iron tip too long time.*

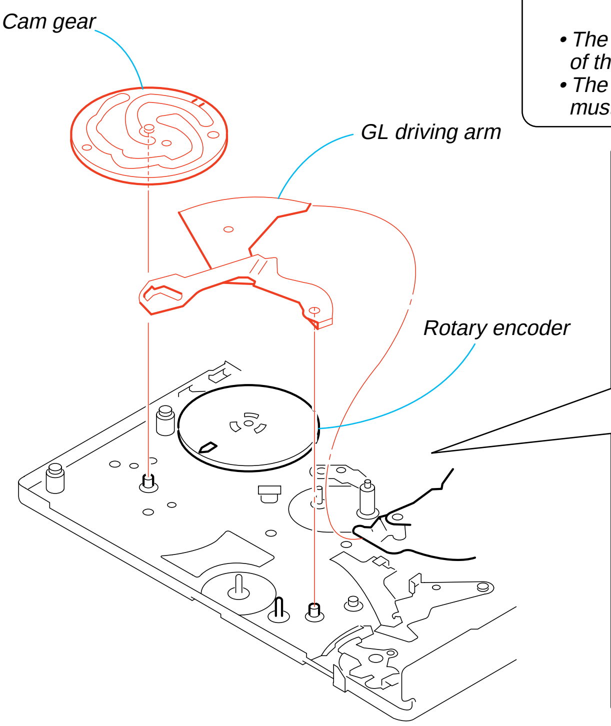
Matching Phase

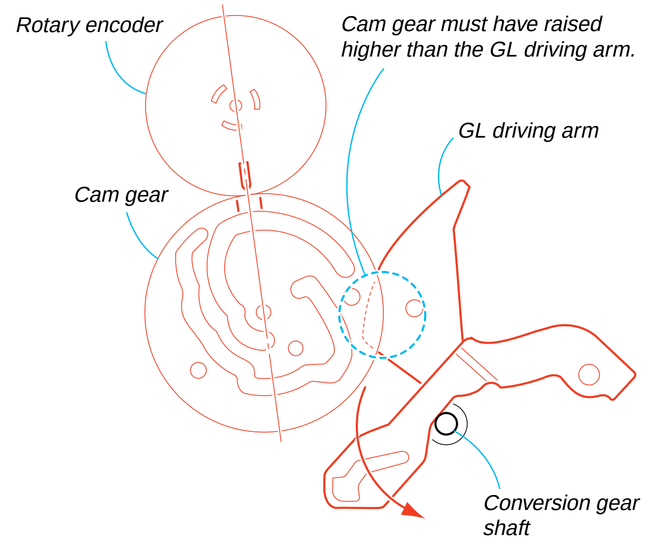

Coaster (S) block assy
Coaster (T) block assy
Drum base groove
Coaster (S) shaft
GL gear (T) shaft

When re-assembling, adjust the gear phase at the three positions.


GL gear (S)
GL gear (T)
GL driving arm
GL gear (T)
▲ mark
V groove
The second tooth from the left
The second tooth from the left
GL gear (S)
GL driving arm

- *The second tooth from the left of the GL gear (S) and the V-groove of the GL gear (T) must be in phase.*
- *The second tooth from the left of the GL drive arm and the ▲ mark must be in phase.*


Cam gear
GL driving arm
Rotary encoder


Rotary encoder
GL driving arm
Cam gear
Conversion gear shaft

Cam gear must have raised higher than the GL driving arm.

4. Adjustment

4-1. FWD Position Adjustment

When the TG2 arm block assy or the band adjuster or the S reel table assy is replaced or removed, the following adjustment becomes necessary.

- TG2 FWD Position Adjustment (Refer to section 4-4.)
- FWD Back Tension Adjustment (Refer to section 4-4.)
- Reel Table (RVS) Check (Refer to section 4-2.)

1) Set the R/P mode and check the TG2 guide position as follows.
   - Confirm that the distance between the TG2 guide and the L motor is 1.0 mm. If not, perform adjustment as follows.
2) Loosen the fixing screw. Use the adjustment screwdriver (Ref No. J-8) and adjust the band adjuster for the distance of 1.0 mm between the TG2 guide and the L motor. Upon completion of adjustment, tighten the fixing screw securely as follows.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 ± 0.1 kgf•cm)
   Note: Upon completion of adjustment, confirm that TG2 can move with some margin in the direction of the arrow Ⓐ.

4-2. Reel Torque Check

1. Check Procedure

[FWD torque]

1) Set the mini DV torque cassette (Ref. No. J-6).
2) Establish the FWD mode. Confirm that the center value of the T reel table torque value is in the range of 0.49 to 0.93 (mN•m) (5.0 to 9.5 g•cm) within deviation of 0.39 (mN•m) (4.0 g•cm)

[RVS torque]

1) Set the mini DV torque cassette (Ref. No. J-6).
2) Establish the RVS mode. Confirm that the center value of the S reel table torque value is in the range of 1.57 to 2.45 (mN•m) (16.0 to 25.0 g•cm)

If the above specification is not satisfied, check the tension regulator band for correct operation. If operation of the tension regulator band has no problem, replace the respective reel tables.

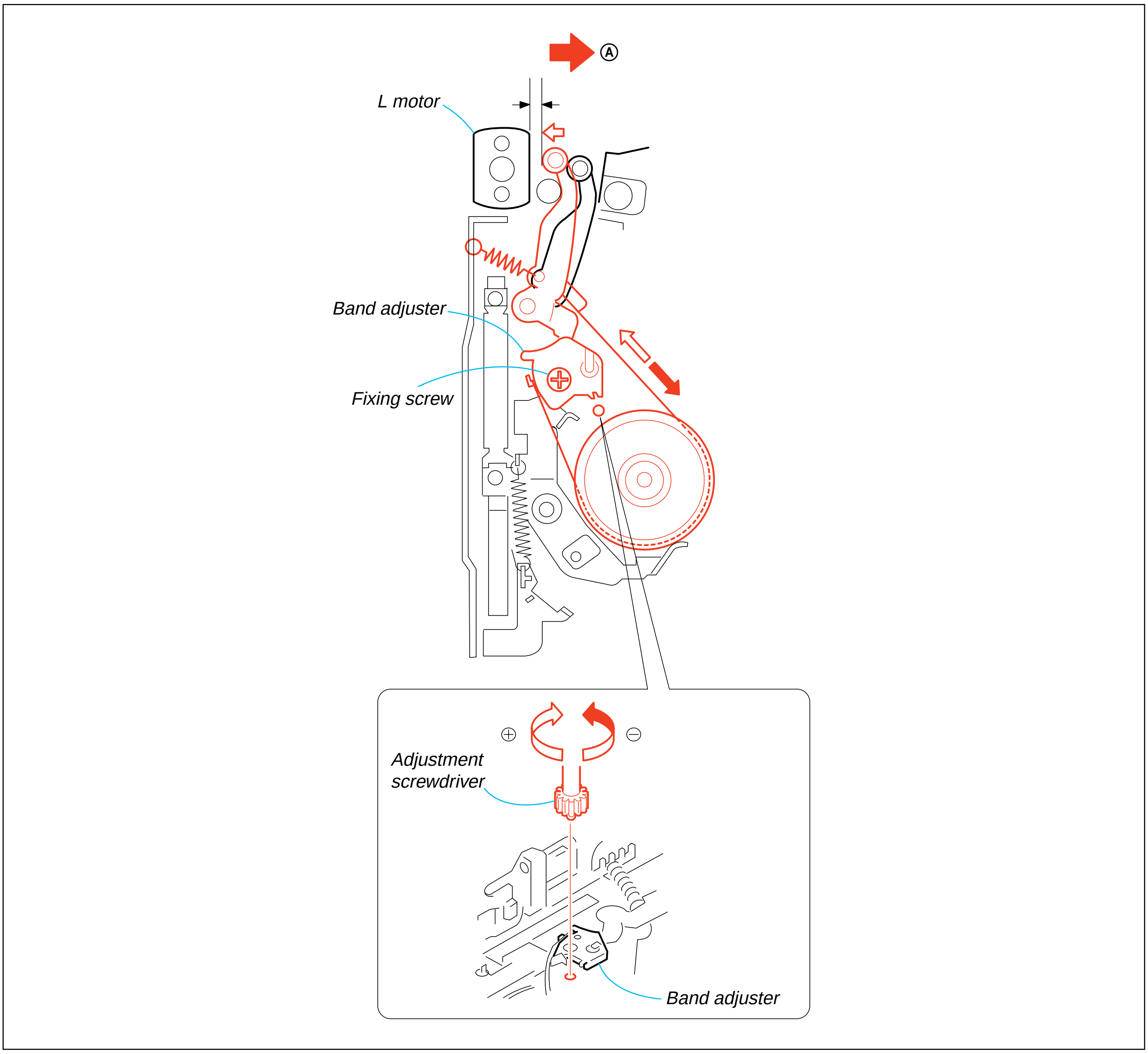


Fig. 4-1

4-3. LS Cam Plate Position Adjustment

1. Adjustment Procedure

1) Loosen the LS cam plate fixing screw (special head screw M1.4 × 1.4) by 180 degrees.
2) Set the STOP mode.
3) While pressing the center of the LS chassis block with the force of 1.5 ± 0.5 N (150 gf ± 50 gf), move the LS cam plate toward the S reel side with the force of 0.147 ± 0.01 N•m (2300 gf ± 200 gf) and tighten the LS cam plate fixing screw (special head screw M1.4 × 1.4) ①.
   Tightening torque: 0.098 ± 0.01 N•m (1.0 ± 0.1 kgf•cm)

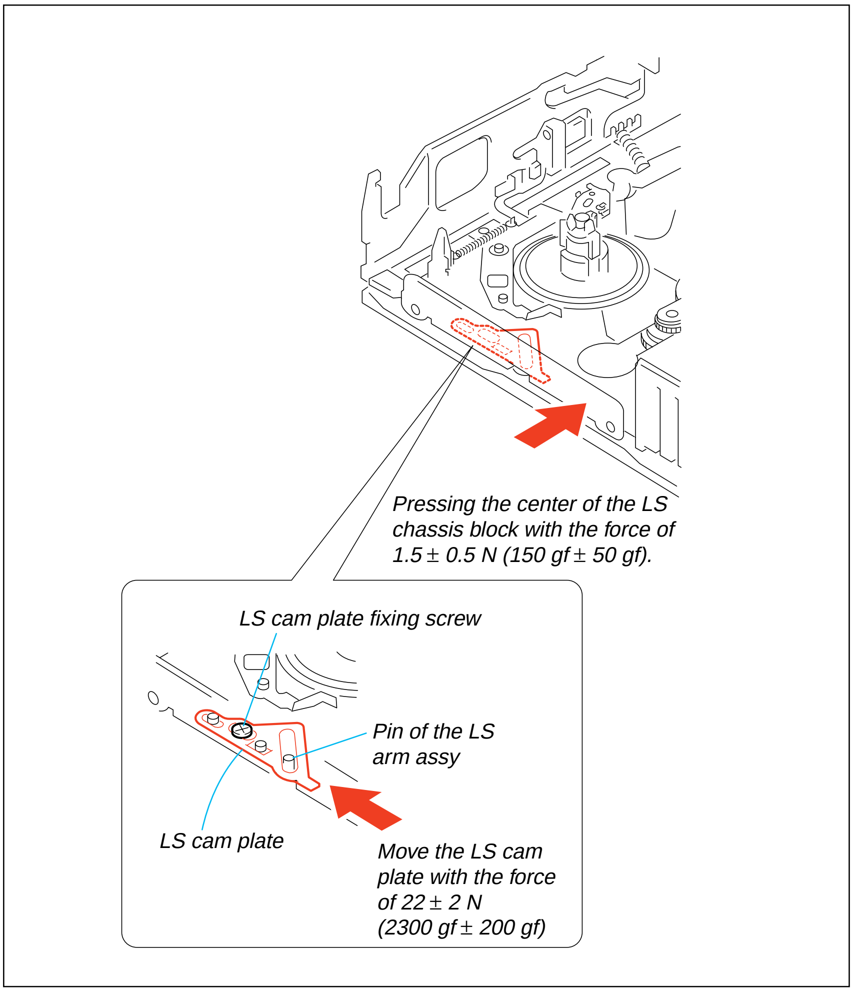

Pressing the center of the LS chassis block with the force of 1.5 ± 0.5 N (150 gf ± 50 gf).
LS cam plate fixing screw
Pin of the LS arm assy
LS cam plate
Move the LS cam plate with the force of 22 ± 2 N (2300 gf ± 200 gf)

Fig. 4-2

4-4. Tape Path Adjustment

4-1. Adjustment Preparation

1) Clean the tape running surface (tape guides, drum, capstan, pinch roller) referring to section 2-2.
2) Connect the adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
3) Connect an oscilloscope to CN1004 of the VC-312 board via the CPC-7 jig (J-6082-382-A). (In the case of DCR-TRV22K)
   Oscilloscope CH1: VC-312 board CN1004 pin② (Note 1)
   EXT. TRIG: VC-312 board CN1004 pin④
   Note 1: Connect CN1004 pin② and pin⑥ (GND) with a 75-ohm resistor (1-247-804-11).
4) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
5) Select page: 0, address: 10 and set data: 00. (Note 2)
6) Select page: 3, address: 26 and set data: 31, and press the PAUSE button. (Note 2)
7) Select page: 3, address: 33 and set data: 08. (Note 2)
8) Confirm that the RF waveform on the scope is flat at both of the entrance side and the exit side. (Refer to Fig. 4-4A.)
   If the RF waveform is not flat either at the entrance side or the exit side (refer to Fig. 4-4 B and C), perform the adjustment of section 6-2 and later.
9) When the required conditions of step 8) are satisfied, perform [Required Work upon Completion of Adjustment] as described below upon completion of adjustment/check.

[Required Work upon Completion of Adjustment]

1) Connect the adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to the ON.
2) Select page: 0, address: 10 and set data: 00. (Note 2)
3) Select page: 3, address: 26 and set data: 00, and press the PAUSE button. (Note 2)
4) Select page: 3, address: 33 and set data: 00. (Note 2)
   Note 2: Page and address numbers differ depending on each model. Please to Service Manual of the respective models. Page and address numbers of DCR-TRV22K are shown in this manual.

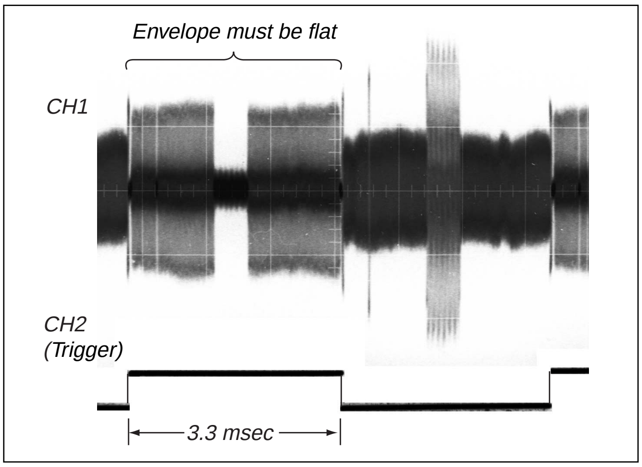


Fig. 4-3

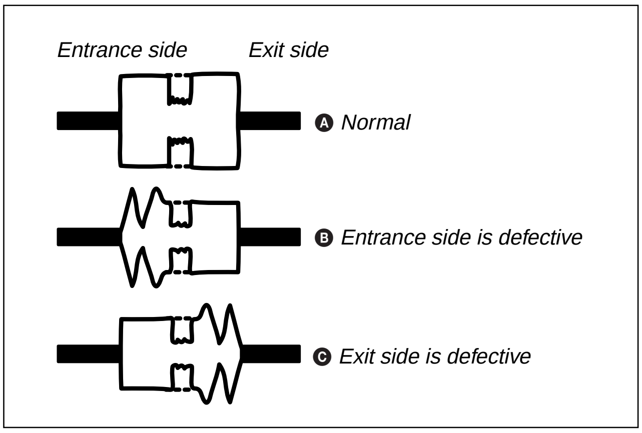
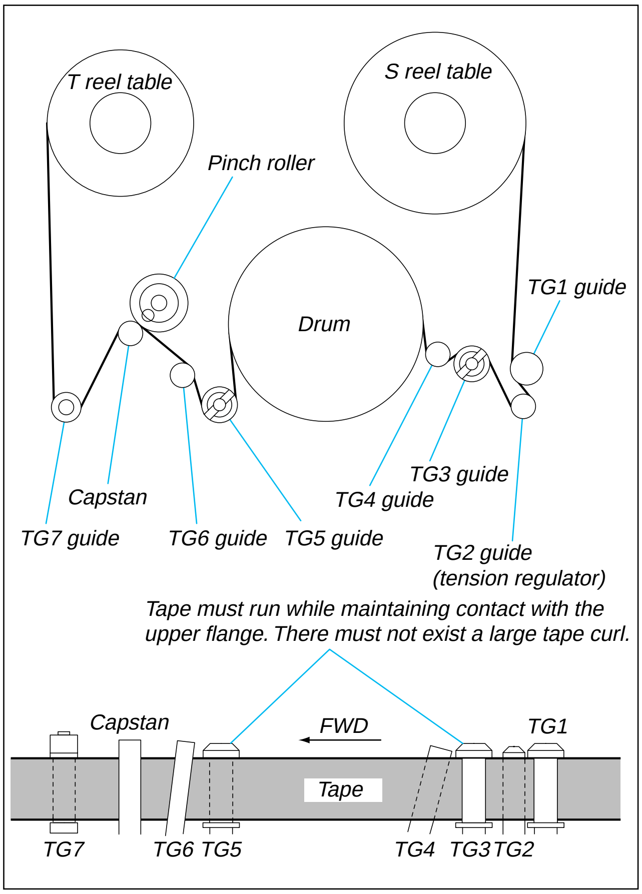

Entrance side
Exit side
Ⓐ Normal
Ⓑ Entrance side is defective
Ⓒ Exit side is defective

Fig. 4-4


T reel table
S reel table
Pinch roller
Drum
TG1 guide
TG3 guide
TG4 guide
Capstan
TG7 guide
TG6 guide
TG5 guide
TG2 guide
(tension regulator)
Capstan
FWD
TG1
Tape
TG7
TG6 TG5
TG4
TG3 TG2

Tape must run while maintaining contact with the upper flange. There must not exist a large tape curl.

Fig. 4-5

4-2. TG3/TG5 Guide Coarse Adjustment

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Adjust the TG3 and TG5 guides until the RF envelope waveform becomes flat. (Refer to Fig. 4-8.)

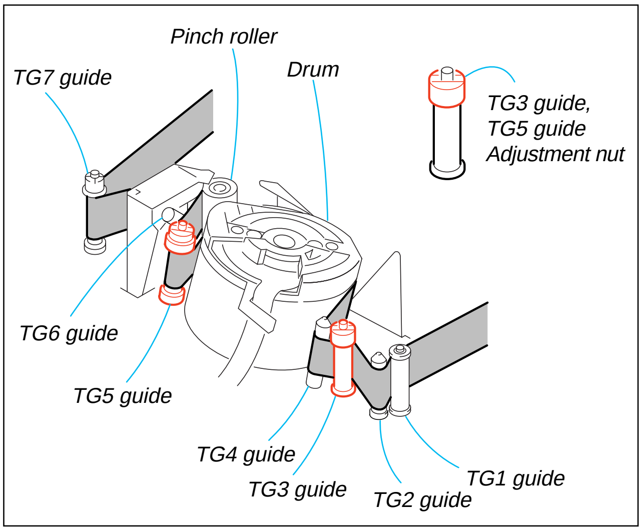

Pinch roller
TG7 guide
Drum
TG3 guide,
TG5 guide
Adjustment nut
TG6 guide
TG5 guide
TG4 guide
TG3 guide
TG2 guide
TG1 guide

Fig. 4-6

4-3. FWD Back Tension Adjustment

1) Set the mini DV torque cassette (Ref. No. J-6) and establish the FWD mode.
2) Confirm that the S side torque cassette reading value is in the range of 0.2 to 0.3 mN•m (2.0 to 3.0 g•cm) including deviation. If the measurement value does not satisfy the specifications, perform the following adjustment.
   - If the measurement value is higher than the specification: (Decreases the spring tension) Move the tension coil spring hook to another spring stay in the direction of Ⓑ.
   - If the measurement value is lower than the specification: (Increases the spring tension) Move the tension coil spring hook to another spring stay in the direction of Ⓐ.

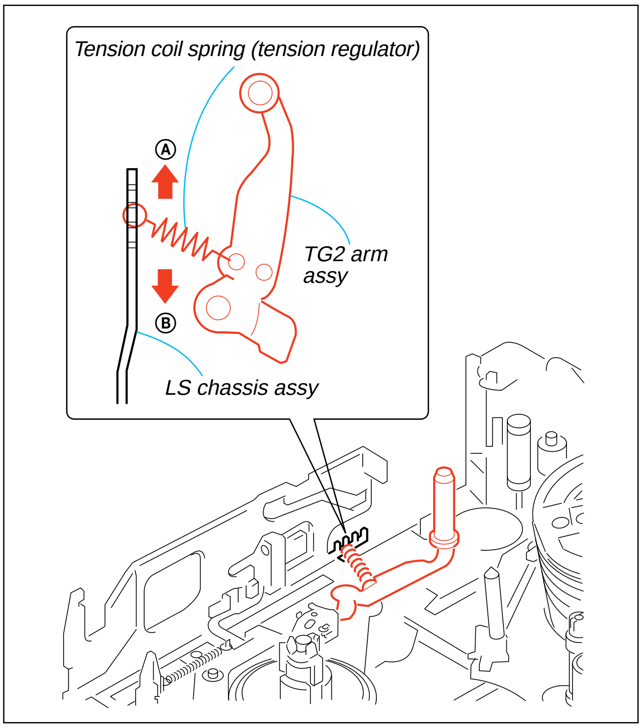

Tension coil spring (tension regulator)
Ⓐ
TG2 arm
assy
Ⓑ
LS chassis assy

Fig. 4-7

4-4. TG3/TG5 Guide Fine Adjustment

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Adjust the TG3 so that the RF envelope has the larger amplitude at the entrance side first, than adjust TG3 guide for flat amplitude. (Refer to Fig. 4-8.)
3) Adjust the TG5 so that the RF envelope has the larger amplitude at the exit side first, than adjust TG5 guide for flat amplitude. (Refer to Fig. 4-9.)

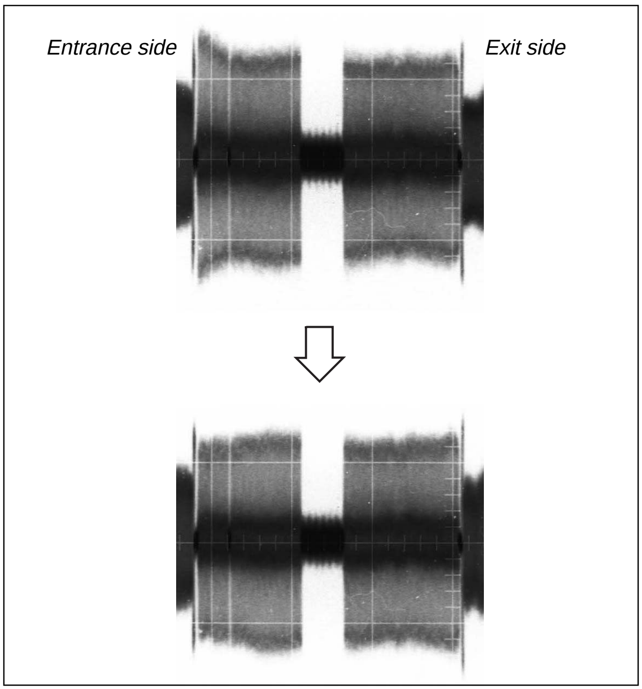


Fig. 4-8

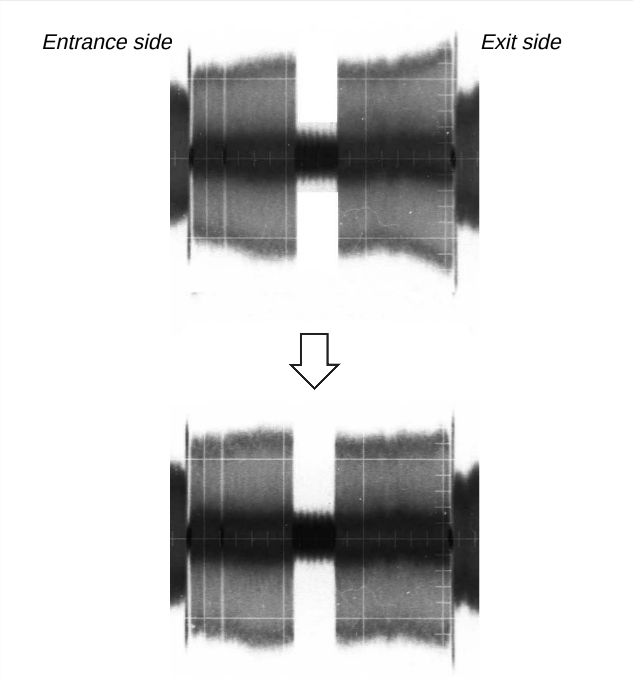
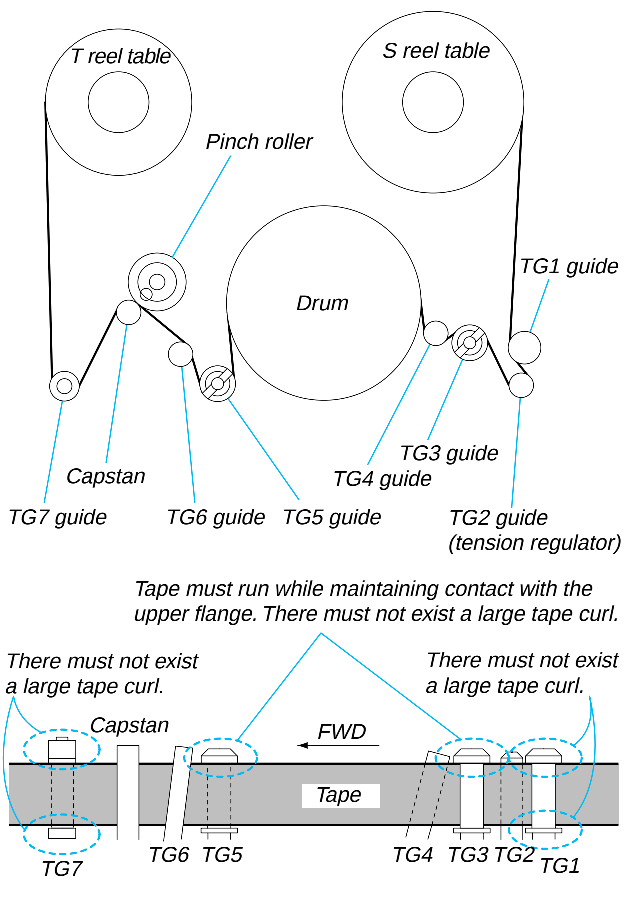


Fig. 4-9

4-5. Tape Run Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5). Establish the CUE mode first then the REV mode. Confirm in the respective modes that there are no large tape curls at the upper flange of TG3 and TG5. Then confirm in the respective modes that there are no large tape curls at the upper and lower flanges of TG1 and TG7.


T reel table
S reel table
Pinch roller
Drum
TG1 guide
Capstan
TG3 guide
TG4 guide
TG7 guide
TG6 guide
TG5 guide
TG2 guide
(tension regulator)
Capstan
FWD
Tape
TG7
TG6
TG5
TG4
TG3
TG2
TG1

Tape must run while maintaining contact with the upper flange. There must not exist a large tape curl.

There must not exist a large tape curl.

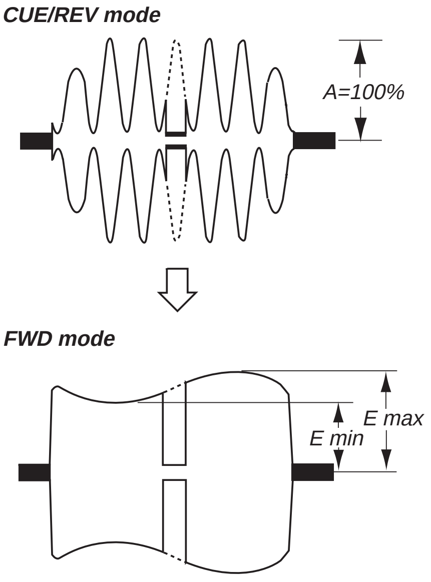
There must not exist a large tape curl.

Fig. 4-10

4-6. Check upon Completion of Adjustment

1. Tracking Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Establish the CUE (or REV) mode. Take the amplitude (A) in this mode as the 100% waveform amplitude. (Refer to Fig. 4-11.)
3) Establish the FWD mode. Confirm that the difference between the minimum (E min) and the maximum (E max) is less than 30%. (When taking the amplitude (A) in the CUE or REV mode as 100%)


CUE/REV mode
A=100%
FWD mode
E max
E min

E min: Minimum amplitude
E max: Maximum amplitude
(E max – E min) ≦ 30% or ($\frac{3}{10}$ A)

Fig. 4-11

4) Confirm that the RF waveform does not have excessive fluctuation of amplitude. (Fluctuation of amplitude should be 10% or less at both entrance side (B) and exit side (C), when taking the amplitude (A) in the CUE or REV mode as 100%)

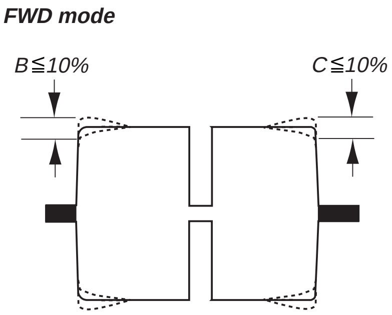
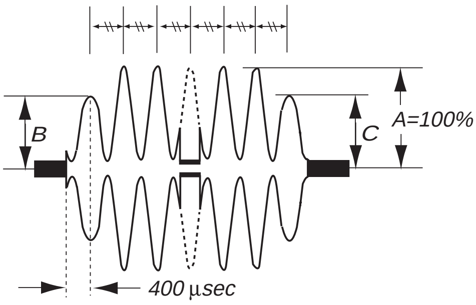

FWD mode
B≦10%
C≦10%

Fig. 4-12

2. CUE/REV Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Establish the CUE mode. Confirm that the pitches between the peaks of the RF waveform are equally spaced. Also confirm that the RF waveform amplitude at entrance side (B) and exit side (C) is 50% or more respectively, when taking the amplitude (A) in the CUE or REV mode as 100%.
3) Establish the REV mode. Confirm that the pitches between the peaks of the RF waveform are equally spaced. Also confirm that the RF waveform amplitude at entrance side (B) and exit side (C) is 50% or more respectively.



B = 50% or more
C = 50% or more

Fig. 4-13

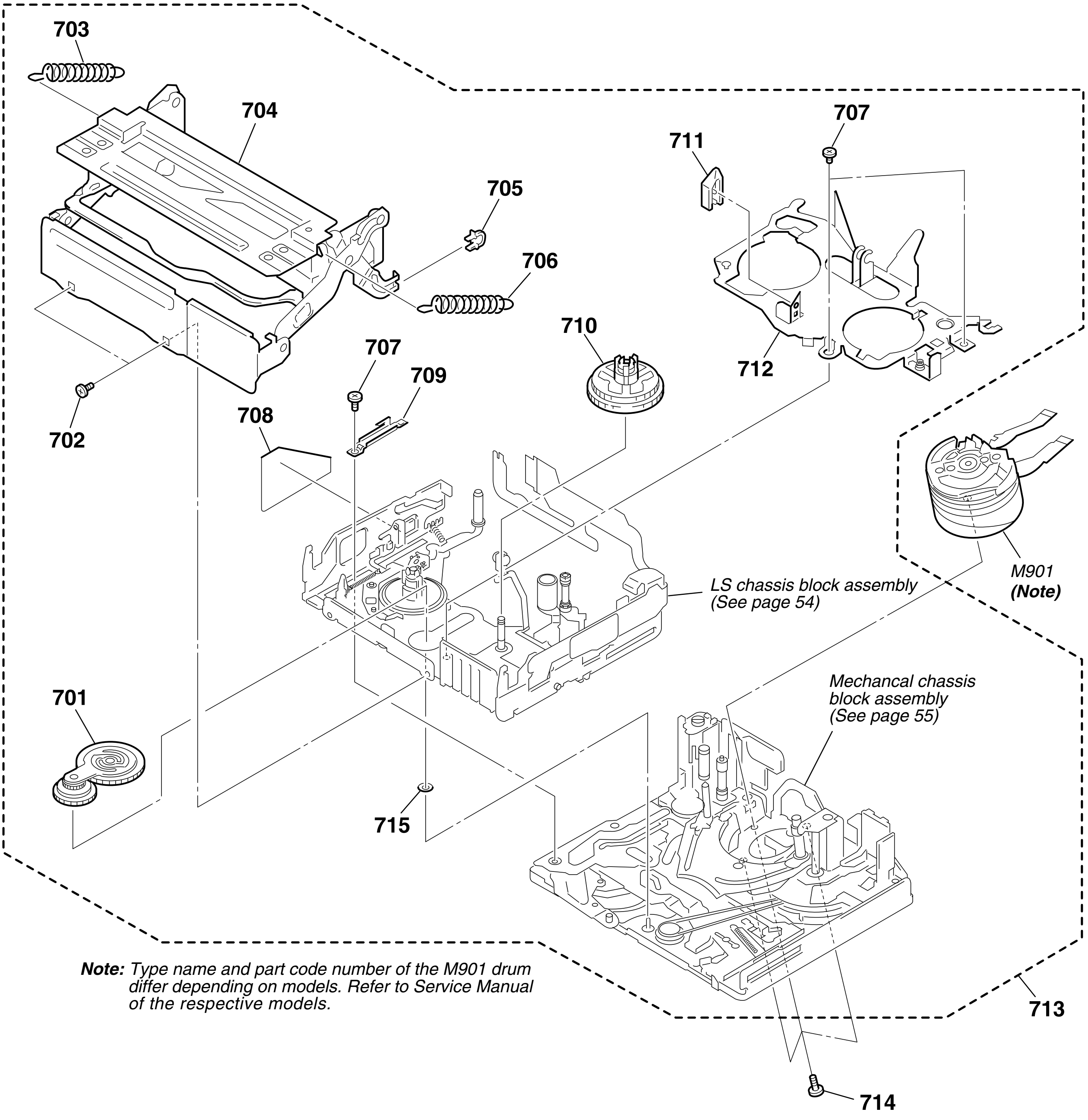
3. Rise-up Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Change the modes from CUE mode to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from CUE mode to FWD.
3) Change the modes from REV mode (two seconds or more of REV and to the FWD within five seconds) to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from REV mode to FWD.
4) Change the modes from STOP mode to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from STOP mode to FWD.

5. Exploded Views

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

5-1. Overall Mechanism Deck Section (Z100)

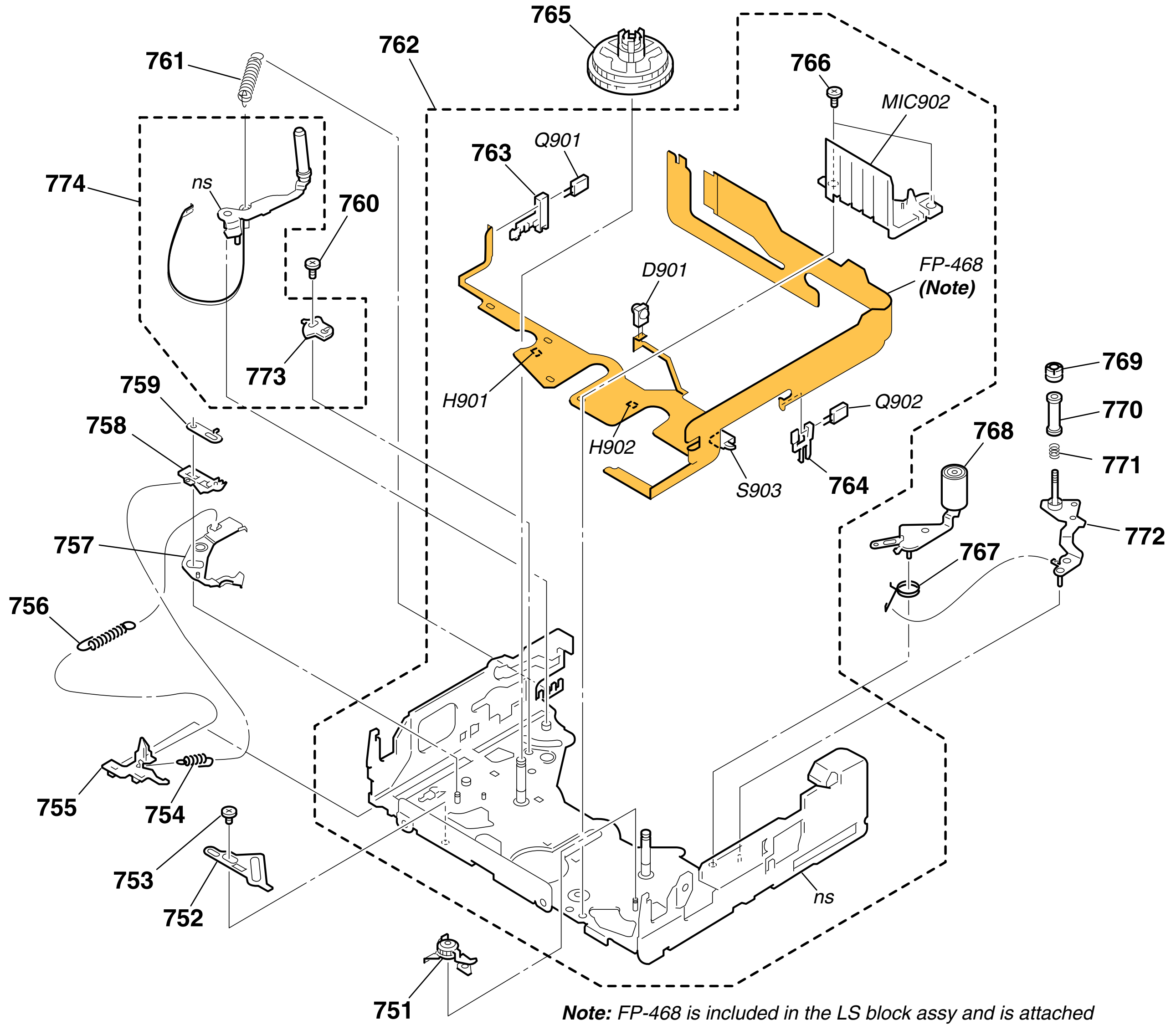

703
704
707
711
705
706
710
712
707
709
708
702
M901
(Note)
LS chassis block assembly
(See page 54)
Mechancal chassis
block assembly
(See page 55)
701
715
713
714

Note: *Type name and part code number of the M901 drum differ depending on models. Refer to Service Manual of the respective models.*

Ref. No.	Part No.	Description
701	X-3952-938-3	GEAR ASSY, GOOSENECK
702	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
703	3-079-206-02	SPRING (POP UP S), EXTENSION
704	X-3952-939-3	COMPARTMENT ASSY, CASSETTE
705	3-079-367-01	DAMPER, CASSETTE COMPARTMENT
706	3-079-215-02	SPRING (POP UP T), EXTENSION
707	3-703-816-15	SCREW (M1.4), SPECIAL HEAD
708	3-080-545-01	COVER, SENSOR S
709	3-079-364-01	RETAINER, LS GUIDE
710	X-3952-937-1	TABLE ASSY, T REEL
711	3-079-366-01	RELEASE, REEL LOCK
712	X-3953-257-1	PLATE ASSY, RETAINER
713	A-7095-393-A	MD (Z100) SUB ASSY
714	3-079-741-02	SCREW,DRUM FIXING
715	3-748-682-01	WASHER,T
M901	– Note –	DRUM (DEH-30A-R)(SERVICE)

5-2. LS Chassis Block Assembly

ns : not supplied

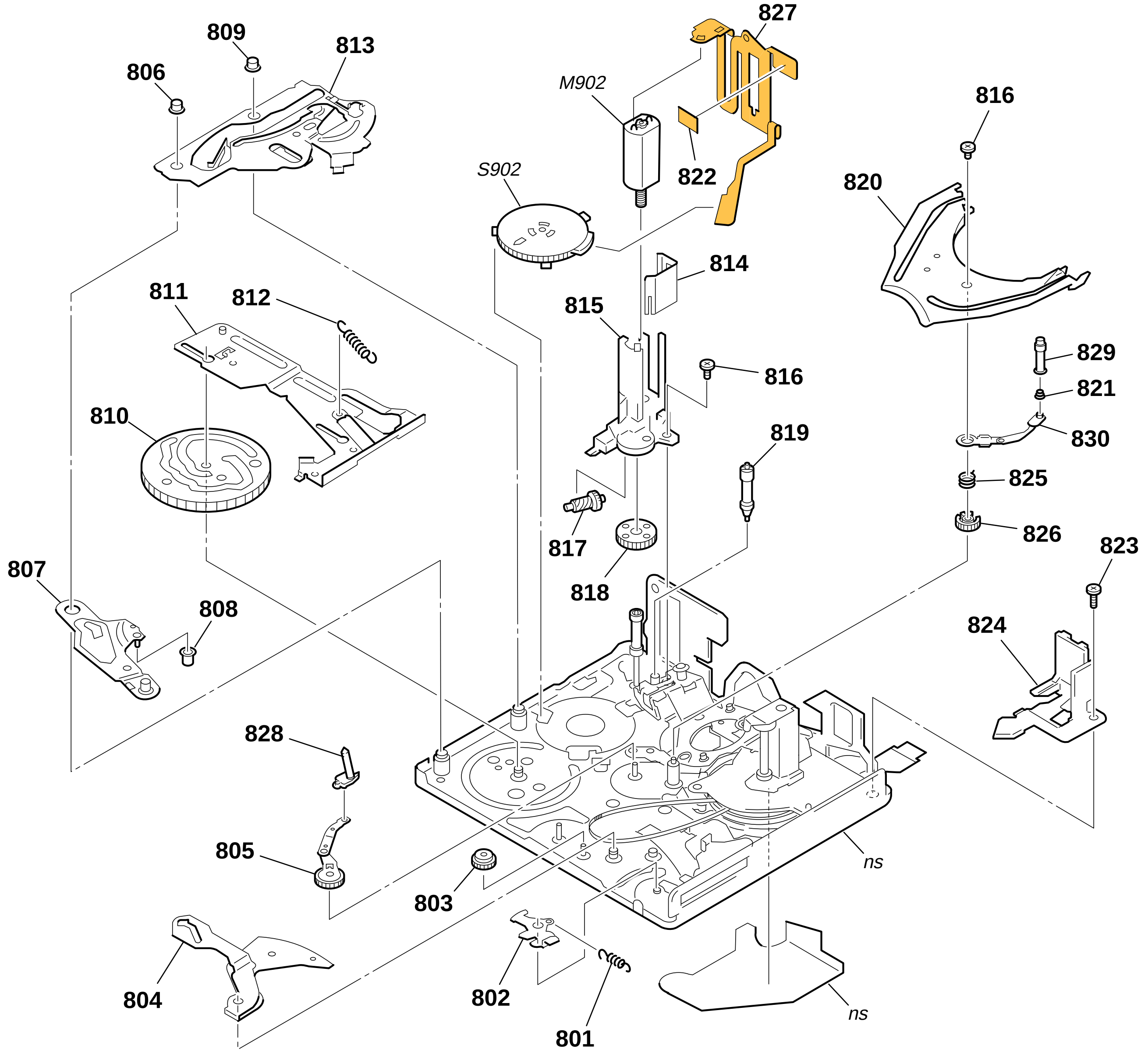


Note: *FP-468 is included in the LS block assy and is attached to chassis by hot-press.*
Because installation of FP-468 requires a very high accuracy, FP-468 is not supplied as an independent service parts.

Ref. No.	Part No.	Description
751	A-7095-402-B	BRAKE (T) BLOCK ASSY
752	3-079-241-01	PLATE, LS CAM
753	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
754	3-079-246-01	SPRING (RELEASE RACK),EXTENSION
755	3-079-248-01	POSITIONING (S), CASSETTE
756	3-079-244-01	SPRING (ULE), EXTENSION
757	X-3952-932-1	BRAKE ASSY, ULE
758	3-079-245-01	RACK (S), RELEASE
759	3-079-247-01	BRAKE (S)
760	3-059-090-11	SCREW (M1.4X2.5), SPECIAL HEAD
761	3-079-242-01	SPRING, TENSION (TENSION REGULATOR)
762	A-7095-401-A	LS BLOCK ASSY
763	3-079-267-01	HOLDER (S), SENSOR
764	3-079-268-01	HOLDER (T), SENSOR
765	X-3952-936-2	TABLE ASSY, S REEL
766	3-703-816-15	SCREW (M1.4), SPECIAL HEAD
767	3-079-243-01	SPRING (PINCH RETURN), TORSION
768	X-3952-934-1	ARM ASSY, PINCH
769	3-052-062-02	NUT, TG7
770	3-079-219-02	TG7
771	3-081-591-01	SPRING, COMPRESSION (TG7)
772	X-3952-935-3	ARM ASSY, TG7
773	3-079-237-01	ADJUSTOR, BAND
774	A-7095-403-B	TG2 ARM BLOCK ASSY
D901	6-500-471-01	DIODE GL453E00000F (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
MIC902	1-817-175-12	PIN, CONNECTOR (WITH DETECTION SWITCH)
S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C. DOWN)
Q901	6-550-402-01	TRANSISTOR PT4850FE000F (TAPE END)
Q902	6-550-402-01	TRANSISTOR PT4850FE000F (TAPE TOP)

5-3. Mechanical Chassis Block Assembly

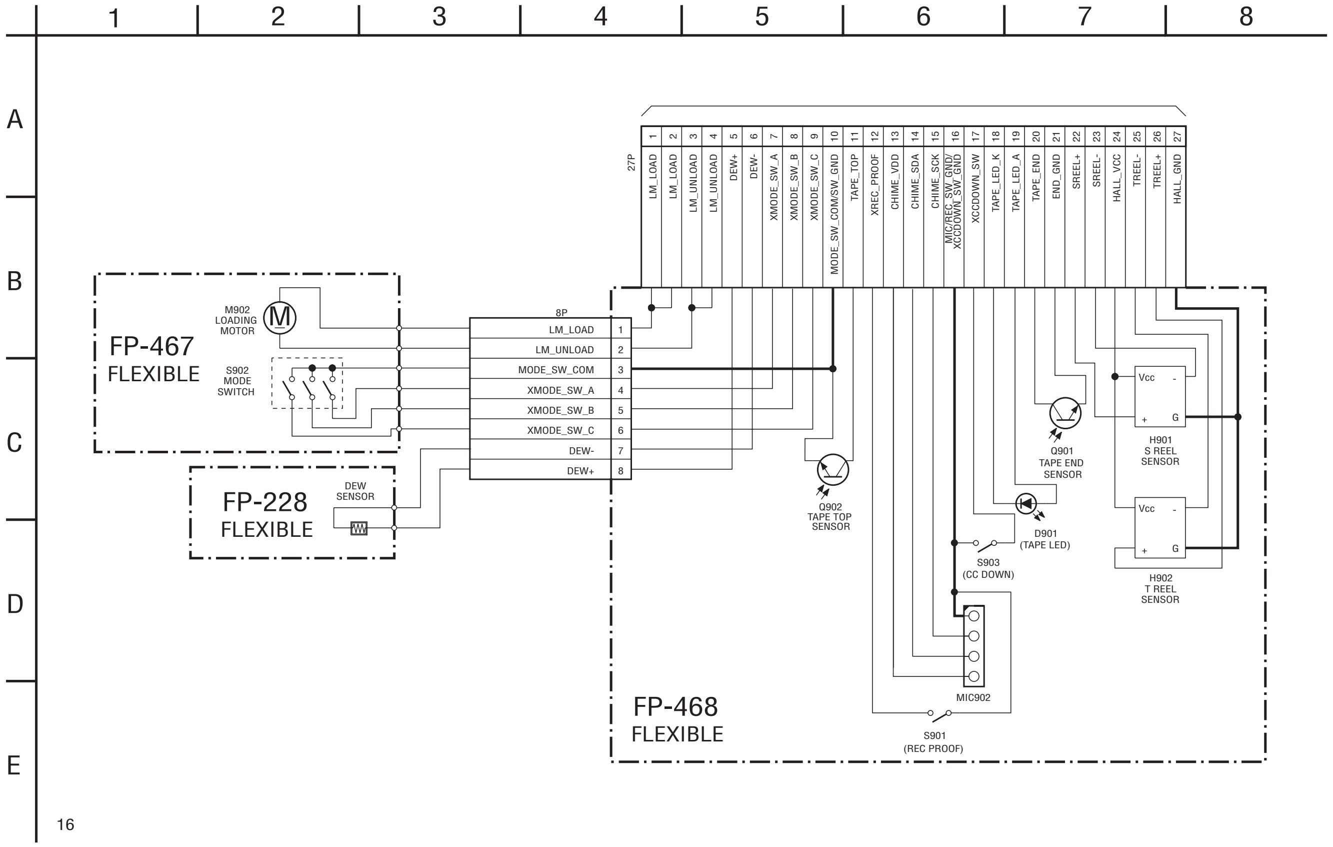
ns : not supplied


806
809
813
827
M902
822
S902
816
820
811
812
814
815
816
829
821
810
819
830
825
817
826
823
818
807
808
824
828
ns
805
803
804
802
801
ns

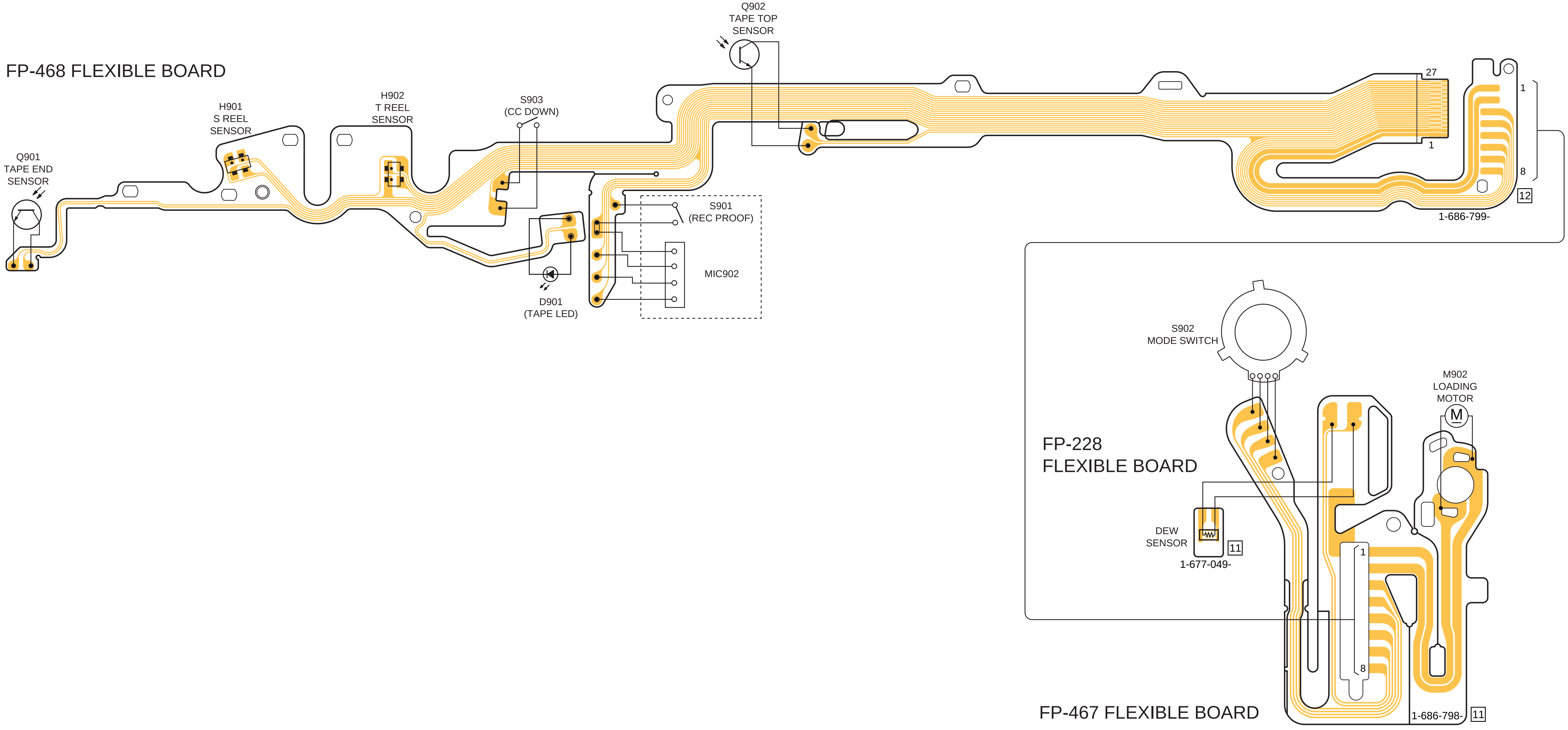
Ref. No.	Part No.	Description
801	3-079-314-01	SPRING (EJ), EXTENSION
802	3-079-327-01	ARM, EJ
803	3-079-323-02	GEAR, CONVERSION
804	3-079-324-02	ARM, GL DRIVING
805	X-3952-928-1	GL (S) ASSY
806	3-079-315-01	ROLLER (S1), LS GUIDE
807	X-3952-925-1	ARM ASSY, LS
808	3-079-320-01	ROLLER, LS
809	3-079-316-01	ROLLER (S2), LS GUIDE
810	3-079-319-01	GEAR, CAM
811	X-3952-941-1	SLIDER ASSY, M
812	3-079-321-02	SPRING (PINCH), EXTENSION
813	X-3952-940-2	PLATE ASSY, TG2 CAM
814	3-079-312-01	SHIELD, MOTOR
815	3-079-307-01	HOLDER, MOTOR
816	3-703-816-15	SCREW (M1.4), SPECIAL HEAD

Ref. No.	Part No.	Description
817	3-079-308-01	SHAFT, WORM
818	3-079-309-01	GEAR, DECELERATION
819	X-3952-942-2	ROLLER ASSY, TG3
820	3-079-325-01	RAIL, GUIDE
821	3-079-295-02	SPRING, TG5
822	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
823	3-079-328-01	SCREW ,SPECIAL (EG GRIP)
824	3-079-326-02	SUPPORT, TG7
825	3-079-301-01	SPRING (GLT), TORSION
826	3-079-298-01	GEAR (T), GL
827	1-686-798-11	FP-467 FLEXIBLE BOARD
828	X-3952-927-2	COASTER (S) ASSY
829	X-3952-930-3	ROLLER ASSY, TG5
830	X-3952-929-3	COASTER (T) ASSY
M902	A-7095-396-A	MOTOR BLOCK ASSY, L (LOADING)
S902	1-477-679-11	ROTARY, ENCODER (SWITCH)

6. Schematic Diagrams


1
2
3
4
5
6
7
8
A
B
C
D
E
27P
1 LM_LOAD
2 LM_LOAD
3 LM_UNLOAD
4 LM_UNLOAD
5 DEW+
6 DEW-
7 XMODE_SW_A
8 XMODE_SW_B
9 XMODE_SW_C
10 MODE_SW_COM/SW_GND
11 TAPE_TOP
12 XREC_PROOF
13 CHIME_VDD
14 CHIME_SDA
15 CHIME_SCK
16 MIC/REC_SW_GND/ XCCDOWN_SW_GND
17 XCCDOWN_SW
18 TAPE_LED_K
19 TAPE_LED_A
20 TAPE_END
21 END_GND
22 SREEL+
23 SREEL-
24 HALL_VCC
25 TREEL-
26 TREEL+
27 HALL_GND
FP-467
FLEXIBLE
M902
LOADING
MOTOR
M
S902
MODE
SWITCH
8P
LM_LOAD 1
LM_UNLOAD 2
MODE_SW_COM 3
XMODE_SW_A 4
XMODE_SW_B 5
XMODE_SW_C 6
DEW- 7
DEW+ 8
FP-228
FLEXIBLE
DEW
SENSOR
Q902
TAPE TOP
SENSOR
Q901
TAPE END
SENSOR
D901
(TAPE LED)
S903
(CC DOWN)
MIC902
S901
(REC PROOF)
H901
S REEL
SENSOR
H902
T REEL
SENSOR
Vcc
-
+
G
FP-468
FLEXIBLE
16

7. Printed Wiring Boards


Q902
TAPE TOP
SENSOR
FP-468 FLEXIBLE BOARD
H901
S REEL
SENSOR
H902
T REEL
SENSOR
S903
(CC DOWN)
Q901
TAPE END
SENSOR
S901
(REC PROOF)
MIC902
D901
(TAPE LED)
27
1
1
8
12
1-686-799-
S902
MODE SWITCH
M902
LOADING
MOTOR
M
FP-228
FLEXIBLE BOARD
DEW
SENSOR
11
1-677-049-
1
8
FP-467 FLEXIBLE BOARD
1-686-798-
11

DV MECHANICAL ADJUSTMENT MANUAL VII

9-876-210-11

Sony EMCS Co.

2003A1600-1

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Published by DI Customer Center

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2003.01	Official Release	—	—